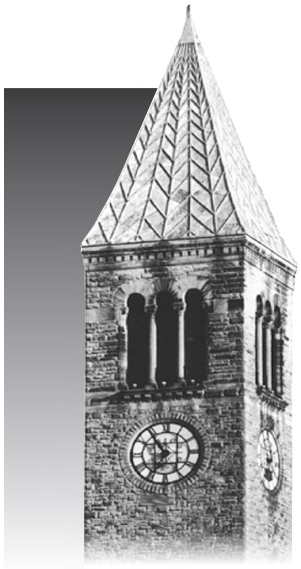

CORNELL FOOD INDUSTRY MANAGEMENT

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September 2001

FreshTrack 2001

Supply Chain Management in the Produce Industry

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Teaching • Research • Executive Education

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Abstract

Much of the success of the produce industry relies on a carefully choreographed supply chain. Planting the perfect varieties, harvesting at the peak of ripeness, packing in customized cartons, transporting fresh produce thousands of miles, and merchandising, marketing and promoting it at just the right moment, is a feat that relies on careful and detailed communication and coordination between grower/shippers and produce retailers.

The objective of this study is to document the status, challenges and changes within the fresh produce distribution system. The method guiding this study has three major components: (1) a review of the relevant trade and academic literature on the fresh produce industry, (2) an extensive mail questionnaire directed at produce retailers, and (3) focus groups with grower/shippers. The retail questionnaire was sent to 270 produce retail executives in April 2001. At each retail firm, senior-level produce executives were asked to complete a questionnaire by describing supply chain management practices within their organizations for 1996 and today, 2001. Furthermore, they were asked to projectwhat the practices will be 5 years into the future, in 2006.

The survey generated 44 useable questionnaire responses, from a representative sample of supermarkets in terms both of geographical and size distribution. Respondents ranged from a number of single-store operators to the very largest of multi-billion-dollar retail operators. Such representativeness allows for a cautious generalization from the survey results to the produce industry as a whole.

Empirical Results

The empirical results and analysis of the study are categorized into 4 principal themes: Produce Department Profile, The Buying Process, Technology and Systemwide Produce Industry Issues. Highlights of *FreshTrack 2001* follow.

Produce Department Profile

- The produce department occupies a prominent place within the supermarket as profitability, number of SKUs, and space continue to grow.
- Produce department size continues to grow, however, at a slower pace than in previous years.
- The number of SKUs in the supermarket produce department is increasing at a dramatic rate; however, the percentage of fresh to non-fresh SKUs remains stable.
- Firms with sales of less than $1.5 billion report more SKUs and higher profitability in their produce departments than large firms.

The Buying Process

- Retail supermarket firms employ fewer produce buyers than just 2 years ago. It appears that a number of produce buying offices have been "consolidated" in an effort to streamline produce buying operations.
- Over the past 5 years the number of produce suppliers used by large firm produce buyers has declined. This trend is expected to continue over the next 5 years. In contrast, small firm produce buyers report using more suppliers today than 5 years ago and anticipate that they will rely on even more suppliers in the years to come.
- Concentration of produce buying continues to strengthen. More and more supermarket retailers are placing more and more of their produce business with their top 10 preferred suppliers.
- Transportations costs, on-time arrivals, and produce rejections are all improving. Furthermore, produce executives expect this trend to continue to improve as the supply chain becomes more efficient.

Technology

- Currently the use of electronic technology has minimal impact on the supply chain. Regardless

of the application (eg. EDI, cross docking, case coding, VMI, etc.) currently less than 10 percent of produce purchases rely on these various forms of electronic technology. However, this will change dramatically in 5 years as the use of technology will double and triple in use.

- The use of B2B E-Commerce to facilitate produce buying has many advantages and disadvantages. Produce executives feel the greatest advantages include "increased transaction accuracy," "lower transaction costs," and "greater transaction speed." The most significant disadvantages of B2B include "limited ability to negotiate" and "inability to obtain immediate satisfaction for product problems."

Systemwide Issues

- As retail produce executives consider system-wide issues that are most important, the list changes and grows as time goes on. The five major issues of importance to retailers include maintenance of margins, quality specification, cold chain maintenance, food safety, and inventory turns.
- It appears that the responsibility for many functions within the supply chain are being shifted upstream as retailers are asking grower/shippers to share responsibility for more tasks than ever before. This trend will continue to 2006.

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Acknowledgments

The conceptualization, development, and support for a research study of this magnitude require enormous effort on the part of many people. First, we would like to acknowledge and offer our heartfelt thanks to the Produce Marketing Association. The leadership at the PMA has provided continuous support while allowing us to conduct this research project independently and objectively. Therefore, we would especially like to acknowledge and express our gratitude to the following people: The PMA staff, its Board of Directors, and the Retail Board.

Next, several individuals were instrumental in producing this report. Janelle Tauer, Don Lebow, and Wendy Barrett provided artistic and graphical support in a highly professional and timely manner. Thank you so much for your expertise and patience.

Finally, an industry-focused study such as this could never be completed without the cooperation and support of the industry under study. We owe a debt of gratitude to the many produce executives who offered their time, opinions, and perspectives about supply chain management in the produce industry. To the retail produce executives who completed our comprehensive questionnaire, thank you. To the grower/shippers who traveled, sometimes hundreds of miles, to participate in our focus groups we thank you, too. Without your combined help, this project could not have been possible.

Foreword

Several years ago the leadership at the PMA recognized a need for high-quality information to be available to the produce industry about the produce industry. In response, the PMA together with the Cornell Food Industry Management Program joined forces and developed the first in a series of research studies called *FreshTrack*.

FreshTrack 2001 is the fourth research study in an ongoing collaborative effort between the produce industry, the PMA, and Cornell. The focus of this *FreshTrack 2001* study is supply chain management. Supply chain management in the fresh produce industry is rapidly evolving as a result of new technology and a systemwide focus on improved efficiency. Because the effective development of a well-managed supply chain throughout the fresh produce system is critical for growth and profits, this study sets out to document the changes and challenges critical at all levels of the industry with information vital for business success.

We hope you find this report provocative and useful as you plan your company's future. We encourage you to contact us if you have any questions.

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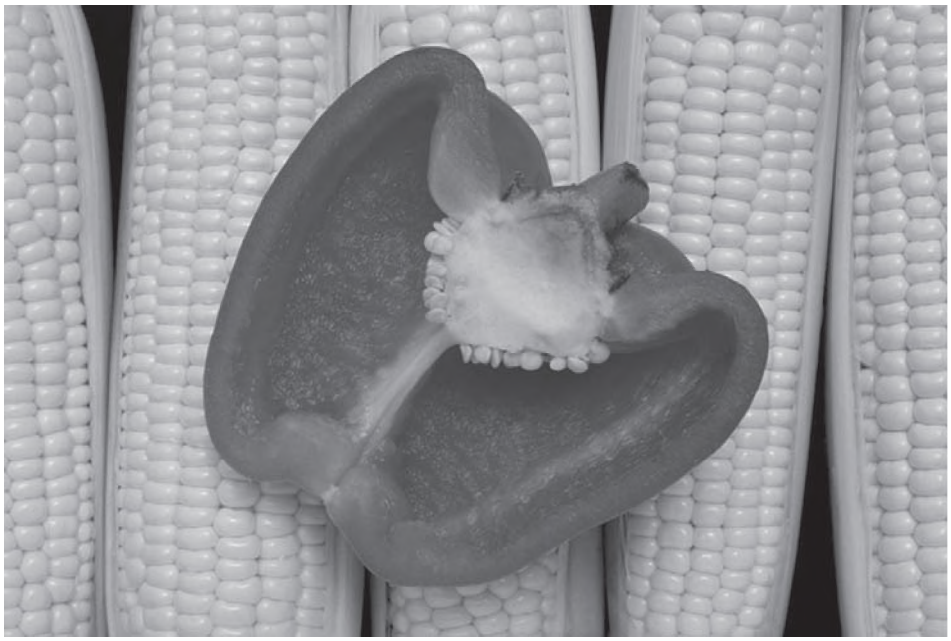
SECTION 1

Introduction

Study Rationale and Methodology



As one of the most dynamic sectors in the food system, the produce industry is constantly challenged by new demands, both human and biological. These demands can be fickle and unforgiving—yet meeting them is critical to the success of the entire produce supply chain. For grower/shippers managing supply-and-demand forces when mother nature has her own plan, presents a delicate, yet vital challenge—one that does not give many second chances. For supermarket retailers managing consumer expectations while maintaining profit margins and meeting Wall Street expectations the demands are great: they must be efficient and cut costs at the back door, while preserving an image of service, variety, and quality at the front door. For grower/shippers and produce retailers, this is a daunting task. Much of the success of the produce industry relies on a carefully choreographed supply chain in a dance of difficult steps. Planting just the right varieties, harvesting at the optimum ripeness, packing in customized cartons, transporting fresh produce thousands of miles, merchandising, marketing, and promoting at just the right moment—all these feats rely on careful and detailed communication and coordination between suppliers and produce retailers.

Study Goals and Objectives

The overarching goal of this study is to generate key benchmark information for decision makers in the fresh produce industry. The specific objectives of this study are to document the status, challenges, and changes within the contemporary fresh produce distribution system. In this age of retail consolidation and new technologies, the produce supply chain management in the fresh produce industry is rapidly

evolving with a focus on improving systemwide efficiency. Because the effective development of a well-managed supply chain throughout the fresh produce system is critical for growth and profits, this study's purpose was to document the changes and challenges critical at all levels of the industry with information vital for business success.

Study Approach

The method guiding this study has three major components: (1) a review of the relevant trade and academic literature on the fresh produce industry, (2) an extensive mail questionnaire directed at produce retailers, and (3) focus groups with grower/shippers.

The retailer-focused mail questionnaire was developed with guidance and input from a steering committee of twelve produce executives—selected with the help of the professional staff of the Produce Marketing Association (PMA). The members of the steering committee represent the many different roles, functions, and positions within the produce industry.

The retail questionnaire was sent to 270 produce retailers in April 2001. The most common job titles of the recipients were: produce director, vice-president of produce, and produce buyer. The individuals and their mailing addresses were obtained from a variety of sources: *Chain Store Guide: Supermarket and Convenience Store Chains*; the PMA; and Cornell University's Food Industry Management Program's own proprietary mailing list of food retail companies. The design of the questionnaire, as well as the mailing procedures, conformed to the Total Design Method (TDM) as established by Dillman (1978).

At each retail firm, senior-level produce executives were asked to complete a questionnaire by describing supply chain management practices within their organizations for 1996 and this year, 2001. Furthermore, they were asked to extend their projections five years into the future through the year 2006.

The survey generated 44 useable questionnaire responses, from a representative sample of supermarket companies, in terms both of geographical and sales distribution. Respondents ranged from a number of single-store operators to the very largest of multi-billion-dollar retail operators. Such representativeness allows for a cautious generalization from the survey results to the produce industry as a whole.

A final methodological note: in certain cases, we compare this year's retailer survey responses to those we have conducted in several different years, even though the respondent groups were not uniformly the same. However, the large number of respondents in all of the surveys reported allows generation of industry averages in such a way that fair benchmark comparisons can be made among various years.

In order to gain a balanced perspective of the issues surrounding supply chain management, in addition to surveying senior-level produce retail executives, three grower/shipper focus groups were held in major growing areas within the United States: Florida, California, and New York. During these focus groups, grower/shippers offered their reactions and perspectives to each major supply chain management theme outlined in the retail survey. Furthermore, these grower/shippers elaborated on the strategies they have adopted in order to remain viable in the new economy of intense competition and continued consolidation.

Organization of the Produce Industry

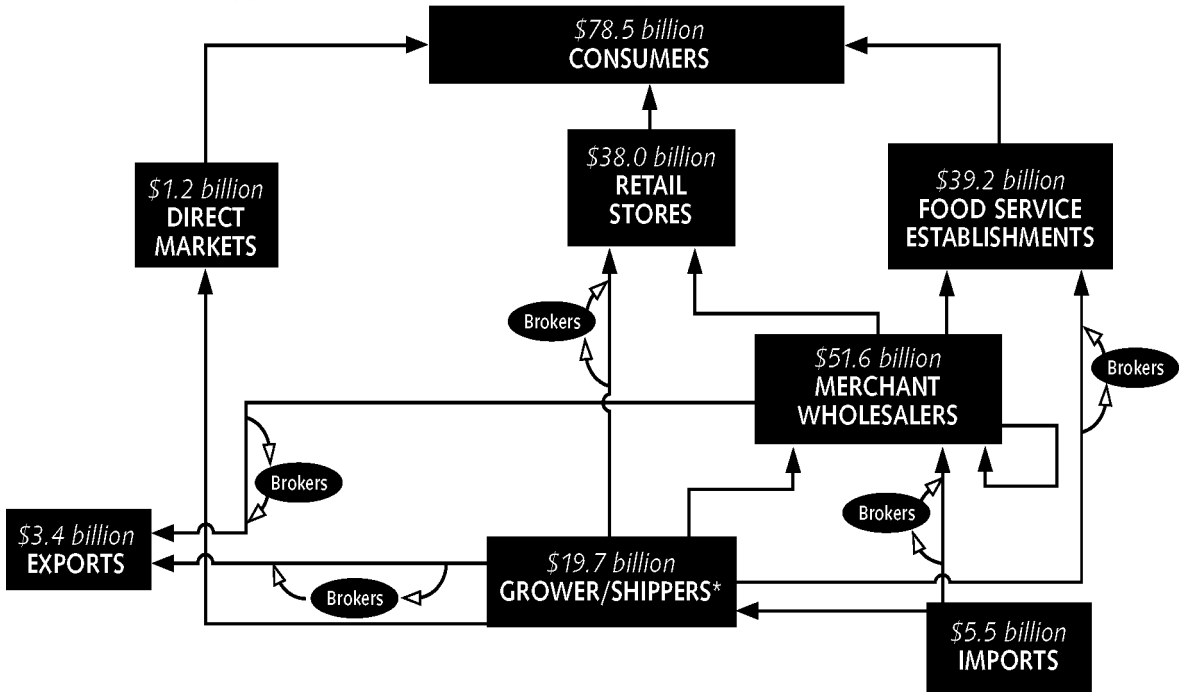
The fresh produce distribution system has evolved dramatically in recent years. Industry structure has changed at virtually all levels and, as a consequence, roles and responsibilities have also changed in an effort to keep pace. At the same time, the dollar volume of fresh produce moving through the distribution channels has continued to grow in nominal and real (inflation-adjusted) terms.

Figure 1.1 is a simplified schematic of the distribution channels through which fresh produce flows from farmer to consumer. The approximate values of the fresh fruits and vegetables flowing through these channels for the year 2000 are indicated.

Fresh produce can reach the consumer in three

FIGURE 1.1

U.S. Fresh Fruit and Vegetable Marketing Channels, 2000



*Because data are not available for packing and shipping charges for all commodities, this value underrepresents the total shipping point value for all fresh produce.

Source: Kaufman, *et al.*, 2000, adjusted using CPI for fresh fruits and vegetables.

primary ways: direct through farm markets, via food stores, or through various foodservice establishments. Only for the last few years, foodservice establishments represented a greater dollar volume of fresh fruits and vegetables than retail outlets. Currently food stores account for $38.0 billion of fresh produce sales while foodservice establishments account for $39.2 billion.

The approximate value of fresh fruits and vegetables sold from U.S. shipping point markets is $19.7 billion; this includes the packing and shipping charges of selected produce. Because data are not available for packing and shipping charges for all commodities, this value underepresents the total shipping point value for all fresh produce. An additional $5.5 billion of produce enters the U.S. distribution system from foreign markets as imports. If the reader is interested in a complete and comprehensive review of the impact of produce imports entering the United States, please see the special appendix at the conclusion of this report entitled *Imports of Fruits and Vegetables in the U.S. Market*.

As indicated above, about $5.5 billion of this domestic produce supply is imported while approximately $51.6 billion is sold by various merchant wholesalers. Direct markets account for only $1.2 billion while $38.0 billion is sold through food stores and $39.2 billion is sold through foodservice establishments—fast food, chain restaurants, and white tablecloth restaurants.

For the reader interested in more detail about the methodology used to arrive at the estimates in Figure 1.1, as well as a description of the roles and responsibilities of the produce firms at the various levels, please see the USDA-ERS AIB #758 authored by Kaufman, *et al.*

Organization of This Report

Throughout this report, survey results will be presented in several ways. In all cases, the mean results will be displayed. In selected cases, the results will be disaggregated by firm size. That is, the firms participating in the study will be divided by annual company sales into one of two categories: less than or equal to $1.5 billion ($1.5B) and gr eater than $1.5 billion (>$1.5B).

The empirical results and analysis of the study are categorized into 4 principal themes:

- Produce Department Profile
- The Buying Process
- Technology
- Systemwide Produce Industry Issues

Finally, additional perspectives on these produce supply chain themes are presented in various sidebars accompanying the main text. Generally, these perspectives have been gleaned from comprehensive reviews of produce and food industry research and from many interviews and conversations with industry practitioners.

At the conclusion of each major theme, perspectives and implications of the results are elaborated and summarized. Finally, strategic overall perspectives and conclusions are discussed at the completion of this report.

SECTION 2

Produce Department Profile

The produce department is one of the most dynamic and exciting departments in the supermarket. Each year as consumers learn more about the myriad health benefits fresh produce offers, discover for the first time new and exotic varieties, eat a deliciously ripe peach in January, or grab a ready-to-eat salad off the shelf, the importance of the produce department soars. As consumers look beyond bananas and oranges, supermarket retailers have been quick to respond by increasing the size of their produce departments, adding new varieties, and building convenience into preparing and consuming produce.

FreshTrack 2001 documents these trends in produce department growth. While produce departments vary across many dimensions of profitability, variety, and size, the overall importance of the produce department continues to intensify. This section examines each of these factors within the produce department.

Financial Profile

Produce executives participating in this study indicated that, on average, their produce departments currently contribute 10.4 percent to total store sales. This number has risen slightly since 1996 (9.5%). As these retail produce executives look ahead five years they anticipate this figure growing to 11.4 percent, on average, by 2006 (Figure 2.1).

Executives representing firms with annual sales of less than or equal to $1.5 billion report somewhat higher figures than the "average" firm calculations indicated above. Currently, these executives are accruing 12.0 percent of store sales from the produce department, up from 11.2 percent in 1996. As they project into the future, these executives predict that by 2006, their average produce sales will account for 13.3 percent of store sales (Figure 2.1).

Consistent with past *FreshTrack* reports, large firm buyers report somewhat lower sales percentages than their smaller firm counterparts. Produce executives participating in *FreshTrack 2001* representing large firms (annual sales >$1.5 billion) indicate that currently 9.3 percent of store sales originate from the produce department, while five years ago this number averaged 8.2 percent. They do not predict a large increase in five years as they project the produce department will account for 10.1 percent of store sales in 2006 (Figure 2.1).

It is interesting to note that firms with annual sales of less than $1.5 billion report that their produce departments consistently account for a greater proportion of overall store sales than their counterparts representing larger firms (annual sales greater than $1.5 billion). This difference may be explained in two ways. First, often smaller retail supermarket companies attempt to create a competitive niche in the marketplace with a "signature" produce department. These produce departments are typically supported by very strong merchandising and marketing efforts which serve to catapult them into the spotlight in terms of store profitability and consumer perceptions. Second, smaller retailers may not have the number of ancillary departments (specialty cheese, general merchandise, pharmacy, natural and organics, etc.) within the supermarket that large retailers now consider standard. A small store may have only 8 to10 departments compared to the 25 or more common in many of today's superstores. Therefore, each department within the smaller supermarket accounts for a larger proportion of the total, resulting in higher departmental averages than is possible in a large superstore.

Historically, the produce department played a more minor role within the supermarket. For example, in 1967 only 7.6 percent of store sales accrued from the produce department. By 1999 that number had risen to 11 percent and for many aggressive supermarkets it is not uncommon for this number to reach the mid to upper teens. Changing eating habits on the part of many Americans has precipitated this shift in sales within the supermarket (see sidebar). Although this shift has resulted in a decline in sales in the meat, dairy, and grocery departments, others such as the bakery, deli, seafood, and produce departments have benefited from the changing American palate. (Table 2.1).

FIGURE 2.1

Produce Sales as a Percent of Total Store Sales by Size

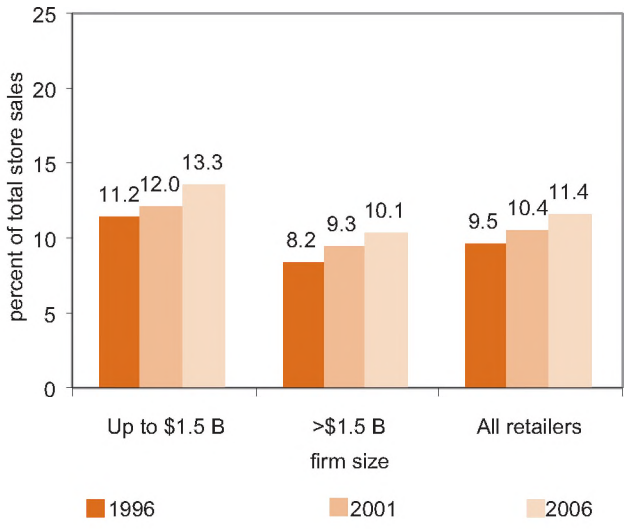


TABLE 2.1

Supermarket Sales Distribution 1967–1999

	% of Store Sales			
	1967	1992	1996	1999
Meat	24.1	14.0	14.4	13.0
Dairy	11.1	6.0	6.1	7.1
Produce	7.6	10.4	10.9	11.0
Deli	n.a.	6.0	6.6	7.0
Bakery	n.a.	3.3	3.3	3.5
Seafood	n.a.	1.1	1.1	1.1
Frozen Foods	4.3	5.2	5.4	5.5
Grocery, food	34.5	26.6	26.4	23.2
GM/HBC/other	18.4	27.4	25.8	28.6

Source: *Supermarket Business*

How Does Your Garden Grow?

Per Capita Consumption Growing

Fresh fruits and vegetables have made inroads in increasing their share of the consumer's diet. When averaging per capita consumption over a three-year period, 1977-1979 and 1997-1999, in order to moderate swings due to production conditions, we see that U.S. consumers increased their total consumption of selected fresh produce by about 32 percent over the past two decades (U.S. Dept. of Agriculture, 2001).

Fresh Fruit and Vegetable Consumption, Late '70s to Late '90s

Three Year Average	Fresh Vegetables	Fresh Fruit	Total Fresh Fruit & Vegetables [1]
	pounds per capita		
1977-79	158.8	101.0	259.8
1996-98	210.5	132.0	342.5
% change	32.5%	30.7%	31.8%

[1]Includes apples, apricots, avocados, bananas, cherries, cantaloupe, cranberries, grapes, grapefruit, honeydew, kiwifruit, lemons, limes, mangoes, nectarines, oranges, papayas, peaches, pears, pineapples, plums, prunes, strawberries, tangelos, tangerines, temples, and melons; and includes artichokes, asparagus, snap beans, broccoli, cabbage, carrots, cauliflower, celery, sweet corn, cucumbers, eggplant, endive, escarole, garlic, head, romaine, and leaf lettuce, mushrooms, onions, bell peppers, potatoes, radishes, spinach, sweet potatoes, and tomatoes.

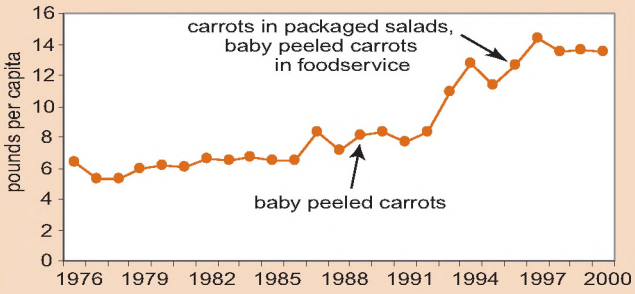
Source: USDA, 2000

Produce Morsels

Carrots:

But have all produce items benefited equally? Of course, averages can be misleading. While some vegetables have soared in popularity, others have slid, or, at best, plateaued in consumption. Take carrots. Originally cultivated in Central Asia and green or purple in color, carrots in the last century were more or less a secondary or even tertiary produce item. After the introduction of baby peeled carrots in 1989, however, per capita consumption jumped (see figure below). Baby peeled carrots, appeared to cater to the convenience-seeking consumer of the '90s. Baby peeled carrots also offered savings of time and labor for the foodservice industry to which they were introduced in 1996-1997. In this same two-year period, carrots were also introduced into packaged salads.

Per Capita Consumption of Carrots



Source: USDA-ERS, 2001

Iceberg Lettuce:

Iceberg lettuce, second only to potatoes in per capita consumption, has experienced considerable consumption variability in the last 2 decades (see figure below). In 1986, consumption of head lettuce hit a low of 21.9 pounds per capita. However, in 1987 McDonalds introduced salads to their traditional hamburger menu and requested a foodservice pack which involved, for the first time, a mix of fresh cut, salad commodities (Grunenfelder, 2001). In 1989, bagged lettuce was introduced to the retail sector, and U.S. consumers consumed, on average, 28.8 pounds per capita. Since then, although consumption of head lettuce has slipped, it has been more than replaced by consumption of romaine, leaf, and other specialty lettuces, as U.S. consumers have added variety to their salads.

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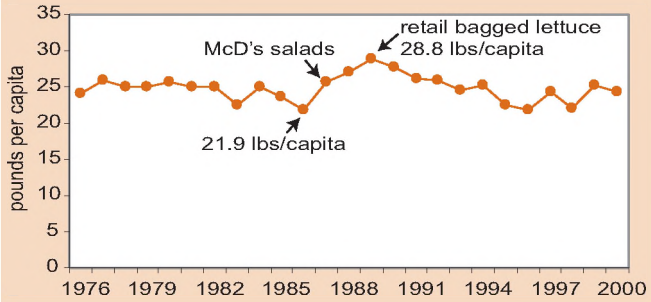
Per Capita Consumption of Head Lettuce

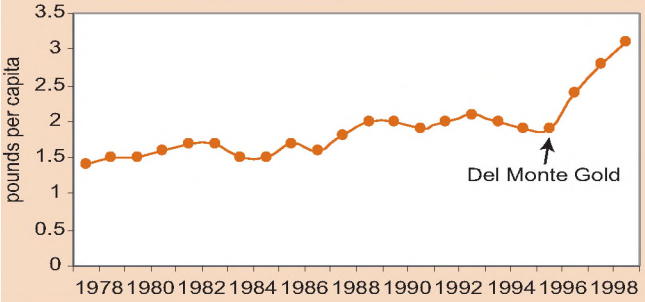


Source: USDA-ERS, 2001

Pineapples:

One of the latest case studies of branding in the produce department comes from Del Monte. In 1996, after years of development, Del Monte introduced a branded pineapple to the global market. The variety struck gold as the Del Monte Gold, despite a retail price often more than double the price of the standard, smooth Cayenne variety. Del Monte claims the Gold is sweeter, with a more consistent flavor and higher in vitamin C. This year, in order to attract new customers to the pineapple category through flavor and different price points, Del Monte has just released another brand, the Del Monte Hawaii Gold, a Hawaiian-grown pineapple introduced commercially into North American markets in March. These pineapples are marketed west of Denver while the Del Monte Gold, which are produced in Costa Rica, will supply the East Coast (Williams, 2001).

Per Capita Consumption of Pineapples



Source: USDA-ERS, 2001

Peaches:

In first-century Rome a peach cost the equivalent of $4.50; in Victorian England, a peach cost the equivalent of $5.00 (*1999 Produce Availability and Merchandising Guide*). Certainly, we have much to be thankful for, living in the 21st Century where peaches sell for less than $1. However, peaches have led a slightly bruised life in the past 20 years. New competition from exotic, imported fruits, less than satisfactory quality from off-shore sources, imported peaches, and perhaps a reputation as a difficult fruit to handle have all been causes of a gradual decline in per capita consumption from the late 70s to the late 90s (see figure below).

To rescue the peach's reputation, the California Tree Fruit Agreement (CTFA) has been implementing programs and promotions along with supporting research projects. In particular, three programs are notable. For consumers, CTFA promotes correct handling procedures post purchase with a bag ripening program:

> How to Ripen Peaches, Plums, and Nectarines to Juicy, Sweet Perfection at Home:
>
> > Simply place peaches, plums, and nectarines in a loosely-closed ordinary paper bag and set on the kitchen counter for one to three days—away from direct sunlight. Check daily for ripeness. When ripe, the fruit will become very aromatic and give to gentle palm pressure. After the fruit is ripe, it can be placed in the refrigerator for up to a week or so.
>
> —California Tree Fruit Agreement

For retailers, CTFA has instituted ripening protocols in the last 6 to 7 years that teach retailers how to handle the fruit through the warehouse and retail environs, since it is sensitive to different temperatures at different stages of ripeness. Additionally, during the last 3 years CTFA has developed procedures to "pre-condition" fruit at shipping point which offers fruit which is not susceptible to internal breakdown at colder temperatures, unlike "unconditioned" peaches.

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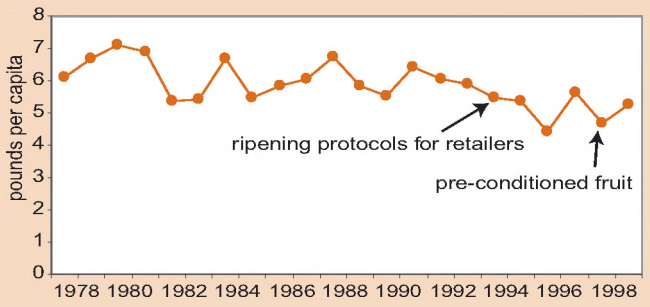
Whether these efforts may stem the decline in consumption still remains to be seen; however, a possible leveling off in per capita consumption in the latter part of the 1990s provides hope. (see figure below)

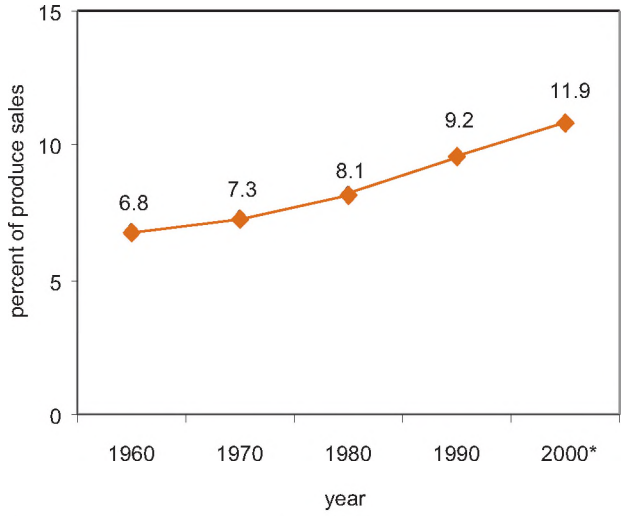
Per Capita Consumption of Peaches



Source: USDA-ERS, 2001 ◆

FIGURE 2.2

Produce Sales as a Percent of Total Store Sales



*Forecast, 1991 Food Executive Program.

Source: McLaughlin and Perosio, 1994

Again, this shift in sales within the supermarket was confirmed by McLaughlin and Perosio (1994) when they reported on produce department sales distribution from 1960 to 2000 (Figure 2.2). Four decades ago, produce accounted for just 6.8 percent of store sales; however, in each decade since it steadily grew in importance and in 1991 was projected to reach 11.9 percent by 2000. This projection made over seven years ago has proven to be a bit optimistic since today the actual figure for an average supermarket produce department is only 10.4 percent of store sales (see Figure 2.1).

However, as produce executives participating in this year's study look ahead to 2006 their projections appear to be leveling off and somewhat less optimistic than those of past *FreshTrack* participants. While two years ago *FreshTrack 1999* participants projected that by 2004 produce sales would swell to 14.5 percent of store sales, this year's respondents believe, on average, that produce sales will account for only 11.4 percent of sales by 2006. While produce executives representing firms with annual sales of less than or equal to $1.5 billion are the most optimistic about their produce department (2006 produce sales accounting for 13.3 percent of store sales), their projections still fall short of those made just two years ago.

The produce department is very profitable for the supermarket. Currently, produce executives report that the produce department's share of company profits is 15.9 percent, up from 14.6 percent in 1996 (Figure 2.3). These same executives expect produce department profitability to grow to an impressive 18.7 percent share in just five short years.

Produce executives representing smaller firms, those with annual sales of less than or equal to $1.5 billion, report even higher profitability for their produce departments than their large firm counterparts. While five years ago the produce department accounted for 15.9 percent of company profits, today that number has swelled to 18.4 percent and is on the rise headed for a very impressive 21.1 percent by 2006 (Figure 2.3).

Large firms also report impressive profitability levels for the produce department. Currently produce departments represented by firms with annual sales in excess of $1.5 billion report that 14.9 percent of

FIGURE 2.3

Produce Department Share of Total Store Profits by Size

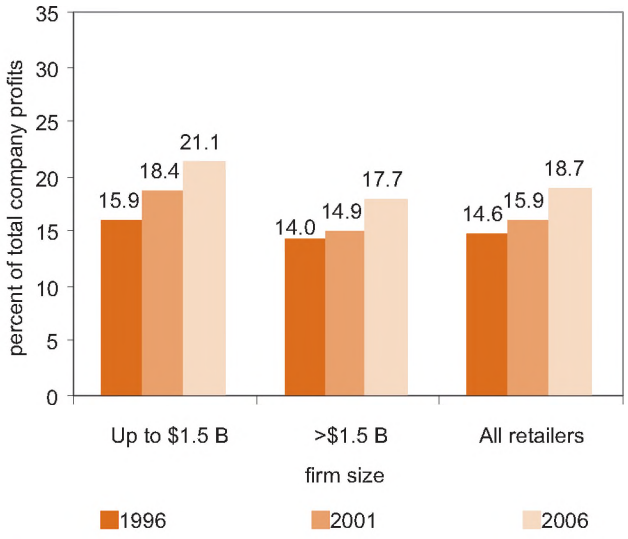
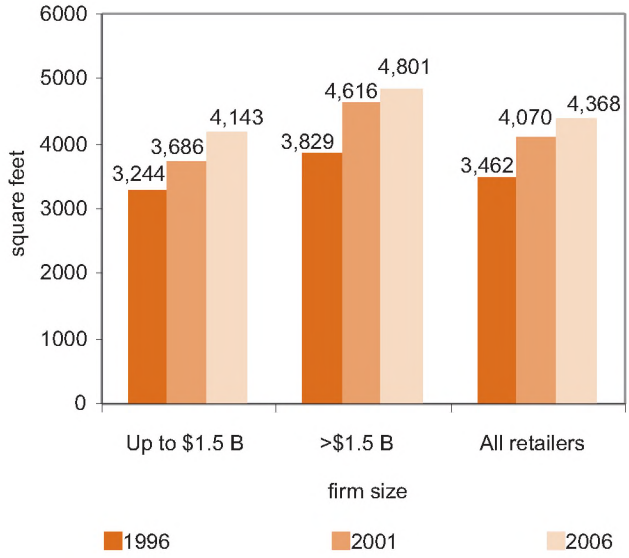


FIGURE 2.4

Produce Department Size by Retailer Size



company profits accrue from the produce department, up from 14.0 percent in 1996. In just five years this number is expected to grow to 17.7 percent (Figure 2.3).

Department Size

Regardless of firm size, not only have produce departments continued to grow in size, but produce executives predict this growth will continue as they look ahead to 2006. Currently, the average produce department represented in this study is 4,070 square feet, up from 3,462 square feet in 1996. Although study participants predict continued growth, this growth appears to be slowing down as indicated by their predictions for 2006—a mere 298 square foot increase in overall produce department size over the next 5 years (Figure 2.4). However, assuming respondent predictions are accurate, produce departments will have grown 26 percent in the 10 years between 1996 and 2006 (Figure 2.4).

Retail supermarket executives representing firms with sales of less than or equal to $1.5 billion report the greatest current and predicted growth in the size of their produce departments. Just five years ago, the average produce department represented by this group of retailers was 3,244 square feet. Today the produce department has expanded by over 400 square feet to its present average of 3,686 square feet, while in just 5 years produce executives predict the department will increase by another 457 square feet in size, bringing it to a predicted 4,143 square feet by 2006 (Figure 2.4).

Executives representing large firms predict similar growth for their produce departments. Although they started out with larger produce departments in 1996 than smaller firms—3,829 square feet vs. 3,244 square feet for smaller firms—the current and predicted growth over the 10-year period from 1996 to 2006 is similar to smaller firms: 25 percent growth for large firms vs. 27 percent growth for smaller firms (Figure 2.4).

According to *Progressive Grocer*, the average supermarket has increased in size from 25,607 square feet in 1994 to 31,500 square feet in 2000. Using these figures along with the average produce department

size as reported by *FreshTrack 1999* and *FreshTrack 2001* participants, the produce department as a percent of total store size has increased from 10.3 percent of store space in 1994 to 12.9 percent in 2001.

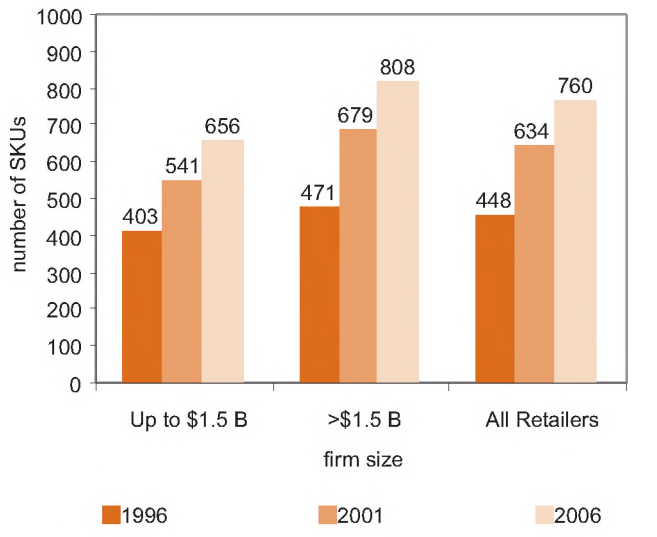
Warehouse Stock Keeping Units (SKUs)

Produce executives have a vast array of items available to them, whether through a wholesaler, direct from a grower/shipper, or via a broker. The average retail firm in this study reports having access to 634 produce stock keeping units (SKUs) in the warehouse (whether their own warehouse or from a general-line grocery wholesaler's warehouse), up from 448 in 1996 (Figure 2.5). This number is expected to rise to 760 in just 5 years. Thus, over this 10-year period, from 1996 to 2006, *FreshTrack 2001* produce executives predict a staggering 70 percent increase in warehouse SKUs.

Produce executives representing large firms report having 679 SKUs available to them through their warehouse, up 44 percent in just 5 years (Figure 2.5). As if this dramatic increase is not enough, as these executives look ahead 5 years they are predicting another impressive increase of 19 percent reaching a total of 808 produce SKUs available in the warehouse.

FIGURE 2.5

Number of Warehouse SKUs by Size



Reviewing the reports from produce executives representing smaller firms highlights similar growth. While these executives report 403 warehouse SKUs available to them in 1996, this number currently stands at 541 SKUs and is expected to grow to 656 warehouse SKUs by 2006, a 63 percent increase over 10 years (Figure 2.5).

Retail Store SKUs

The number of total items (both fresh and non-fresh), as indicated by SKUs in the produce department, continues to display impressive growth. McLaughlin and Perosio (1994) reported on item growth from 1960 to 1990 for large firms. Looking back over 40 years for large firms (annual sales >$1.5 billion), a typical produce department carried just 160 items. However, item growth has been impressive over the decades, climbing to 481 by 1999 (Figure 2.6). *FreshTrack 2001* respondents confirm these earlier predictions. On average, the typical produce department represented by respondents to this study has 574 store-level SKUs, up from 430 in 1996. As these produce executives look ahead toward 2006, they envision their produce departments will have 664 SKUs, an increase of 54 percent from 1996 to 2006 (Figure 2.7).

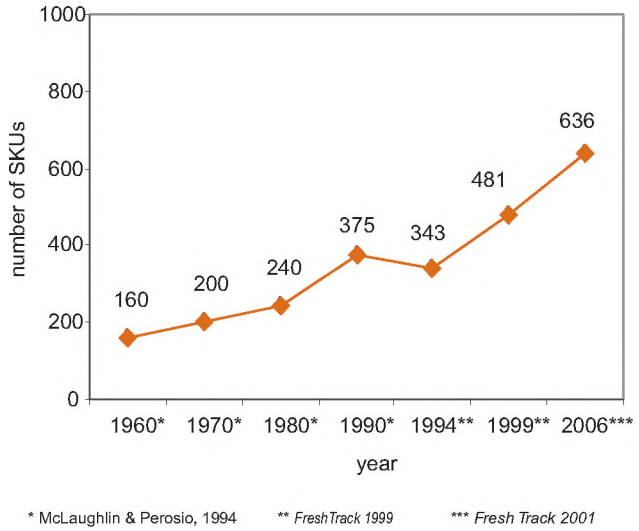
Retail produce executives within firms with annual sales of less than or equal to $1.5 billion report similar growth and optimism regarding item growth within their produce departments. Currently these produce executives indicate an average of 592 items in their produce department, up from 436 in 1996. By 2006 they expect their produce departments to offer customers a very impressive 706 produce SKUs (Figure 2.7).

While executives representing larger firms also report growth of store-level SKUs their produce departments have fewer SKUs than their smaller firm counterparts. Currently, for large firms, the produce department carries 562 SKUs, up from 426 in 1996 and headed for 636 by 2006 (Figure 2.7).

Comparing small and large firms, it appears that small firms may be taking a more aggressive approach

FIGURE 2.6

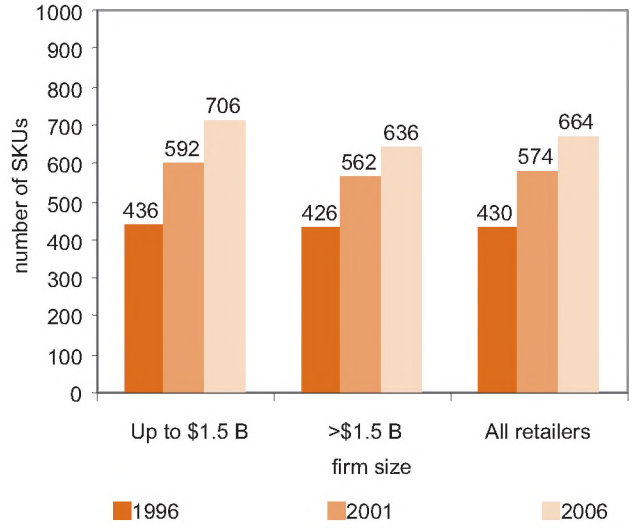
Number of Retail Store Produce SKUs for Retailers with Sales over $1.5 Billion



* McLaughlin & Perosio, 1994 ** FreshTrack 1999 *** Fresh Track 2001

FIGURE 2.7

Number of Retail Store Produce SKUs by Size



within their produce departments as reflected in their relatively large number of SKUs as well as their very high levels of profitability for the produce department. Today's supermarket produce department is more diverse and intriguing than ever before with the addition of ethnic and organic produce along with many new varieties, year-round availability, packaged salads, private label produce (see sidebar) and imported products. Perhaps small firms' produce executives are taking greater advantage of the plethora of opportunities available to them through produce, elevating their produce departments to a destination in the minds of their customers.

A Growth Opportunity for Retailers and Suppliers

Over the last decade, private label brands or store brands have become a popular and profitable marketing strategy in the United States as well as in Europe. According to a recent Gallup study sponsored by the Private Label Marketing Association, conducted in September 2000, 71% of U.S. supermarket shoppers consider store brands the same as or better than the quality of national brands.

Retail consolidation has had a strong influence on private label development both in Europe and in the United States. Store brands have become a way for retailers to differentiate themselves from their competitors and to create loyalty to their stores in an evermore tightly concentrated marketplace.

In Europe, private label products' value and unit penetration in the 7 major markets has been significant, with the United Kingdom leading at 45.4% volume share and 43.5% value share in 1999. This is followed by Belgium, Germany, France, the Netherlands, Spain, and Italy (Table 1). The long term private label trends in the UK market for the period 1997–2000 indicate that private label share of sales

continued ☛

has continued to grow mainly in the food sectors and particularly in perishables such as dairy and bakery, with shares of 52.4% and 61.1% in 2000, respectively. Shares for other categories such as household products, soft drinks, and health and beauty aids decreased during this period.

Private Label Penetration in Europe 1999

Country	Volume Share %	Value Share %
United Kingdom	45.4	43.5
Belgium	34.7	27.4
Germany	33.2	26
France	22.1	19.1
The Netherlands	20.6	18.4
Spain	20.5	14.8
Italy	17.1	15.5

Source: *PLMA Yearbook 2000*

In the United States, private label penetration (value share) among the top 10 food retailers in 2000 ranged between 7% for Costco to 23% in Winn Dixie Stores and A&P (Table 2). In 2000, private label sales in U.S. supermarkets increased 1% in dollar share of sales to 15.5% but decreased 1.2% in unit share to 20%, compared to 1999. Among the different types of products, basic commodities declined at the expense of so-called value-added products: 6 out of the 10 top commodity categories declined in dollars sales and 8 out of the top 10 declined in unit sales. Among the main double-digit gainers in share of sales are frozen and refrigerated items, that is, many perishable products. Private label packaged salads have been one of the highest-growth segments, accounting for 12% of the value-added, packaged salad category, up 4% from 1999.

Private Label SKU Count and Share of Sales in 2000 for the Top 10 U.S. Food Retailers

Company	Total Sales Billion $	Aprox. PL SKU	PL share*
Wal-Mart	57,200	5,000	20%
Kroger	49,700	6,000	20%
Safeway	32,500	3,000	20%
Albertson's Inc.	31,000	6,000	16%
Ahold USA	28,100	2,000	20%
Costco	17,700	500	7%
Delhaize America	14,700	6,500	17%
Winn Dixie Stores	14,323	2,700	23%
Publix Super Markets, Inc.	14,100	1,200	16%
A&P	10,500	2,300	23%

*Percent of total dollar sales.
Source: *Private Label*, March–April 2001

As these data clearly indicate, a shift from the basic commodity to the value-added categories is driving the private label sales figures. In the United States the growth of fresh-cut produce is a principal contributing factor towards selling more store-branded produce since little private label development has taken place so far in the produce department and national brands are only present for a few items. It is up to retailers to take

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advantage of this opportunity, which, in theory, should benefit the whole produce industry and, similarly, it is up to both retailers and suppliers alike to master the challenges involved.

Challenges for retailers include a commitment to quality, along with delivering produce to meet the standards of today's consumer's expectations on a permanent basis, and ensuring that the product being packaged corresponds to the image of the store. Challenges for suppliers include the ability to provide their customers the required quality in sufficient, adequately packaged and safe quantities on a permanent basis. At both ends of the supply chain there is a need to innovate and to have the flexibility to adapt to the consumer's changing needs and wants.

The growers and shippers surveyed in this study consider that the major responsibility for private label in the produce industry lies with the retailers. Retailers agree with this assessment. In five years, growers and shippers see this mainly as a shared responsibility, though retailers still view it more on their side and as a shared responsibility, as opposed to being more on the grower/shipper end of the supply chain. Some grower/shippers indicate negative experiences with orders for private label products. These negative experiences are mainly related to order cancellations and the consequent need to re-package the product, with additional costs involved and diminished product quality and shelf life.

Clearly, if the industry is to benefit from the growth opportunities that private label produce offers, adequate planning, accurate forecasting, and appropriate brand managing are the requisites for retailers. For suppliers, the ability to maintain quality standards, to innovate, and to add value constitute key strategies. Above all, this is a business opportunity where partnering of retailers with growers and shippers would bring about the best systemwide outcome. ◆

Balance of Fresh and Non-Fresh Items

Produce executives were asked to indicate the number of non-fresh SKUs in their produce departments. Currently 149 SKUs within the produce department are non-fresh items, up from 116 in 1996. This number is expected to increase to 183 by 2006 (Figure 2.8).

Smaller firms tend to have more non-fresh SKUs than larger firms. Five years ago these firms with annual sales of less than $1.5 billion reported having 103 non-fresh SKUs in their produce departments. Today that number has increased to 146 and is expected to increase to 190 by 2006 (Figure 2.8).

Large-firm produce executives report having 151 non-fresh SKUs currently in their produce department, up from 124 in 1996. Within 5 years they predict this number will grow to 179 non-fresh produce SKUs (Figure 2.8).

Regardless of firm size, all executives predict growth in the number of non-fresh SKUs in their produce department. However, while the number of non-fresh SKUs is growing, so is the number of fresh SKUs. In fact, the percentage of fresh SKUs in a supermarket's produce department has remained remarkably steady over the past several years. *FreshTrack 1999* reported that typically a little more than 73 percent of a produce department's SKUs were fresh. *FreshTrack 2001* reveals an almost identical number—currently 74.0 percent of produce in an average produce department is fresh (Figure 2.9).

Produce Department Profile

Summary and Perspectives

- The produce department occupies a prominent place within the supermarket as profitability, number of SKUs, and space continue to grow.
- Produce department size continues to grow, however, at a slower pace than in previous years.
- The number of SKUs in the supermarket produce department is increasing at a dramatic rate;

however, the percentage of fresh to non-fresh SKUs remains stable.

- Firms with sales of less than or equal to $1.5 billion report more SKUs and higher profitability in their produce departments than large firms.

FIGURE 2.8

Number of Retail Store Non-Fresh Produce SKUs by Size

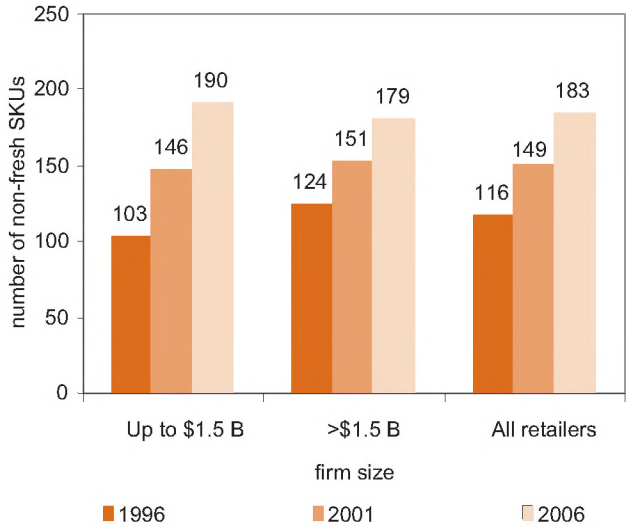
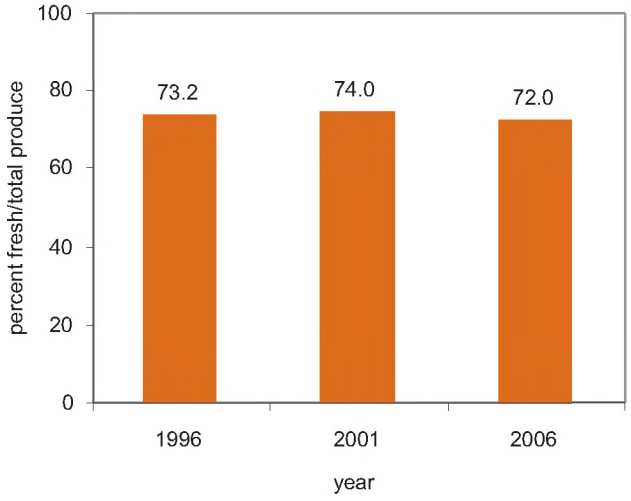


FIGURE 2.9

Fresh SKUs as a Percent of Total Retail Store Produce SKUs



SECTION 3

The Buying Process

The buying process, that is, the complete transaction between the buyer and seller, is a vital link in the supply chain and, in many ways, a pivotal connection uniting the best practices of the past with the hopes of the future. While a handshake still seals many deals, the buying process is at the center of innovation and technological transformation propelling produce buying and selling offices into the future with computers, networks, B2B, and worldwide auctions. This section examines the entire buying process from procurement to transportation, offering grower/shippers' perspectives and reactions to this perplexing retail environment.

Produce Buyers and Category Managers

In this age of retail consolidation, it is interesting to note a slight decrease in the number of retail produce buyers particularly in large firms. In this era of the "mega" chain, the retail produce buying office appears to have been "consolidated" along with its operating company. Just 2 years ago, *FreshTrack 1999* reported a total of 10.2 retail buyers per firm. Today, that number has declined to 9.8 buyers per firm (Figure 3.1). As mentioned earlier, the decline is most apparent with large firms. Currently there are an average of 15.6 retail produce buyers per large firm whereas *FreshTrack 1999* reported 19.8, almost 4 more buyers just two years ago than exist today. These large supermarket companies currently employ 3 buyers at headquarters, 7.9 in divisional or regional offices and 4.7 buyers in field buying offices (Figure 3.1).

On the other hand, small firms report a total of 1.9 produce buyers and all of these buyers are located at headquarters (Figure 3.1).

However, not all retail supermarket companies employ field and/or division buyers. While 100 percent of small firms employ only headquarter buyers, only

FIGURE 3.1

Number of Retail Produce Buyers by Size

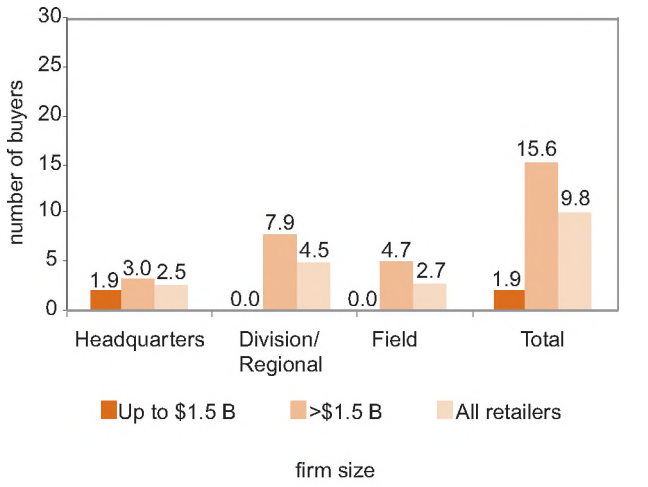
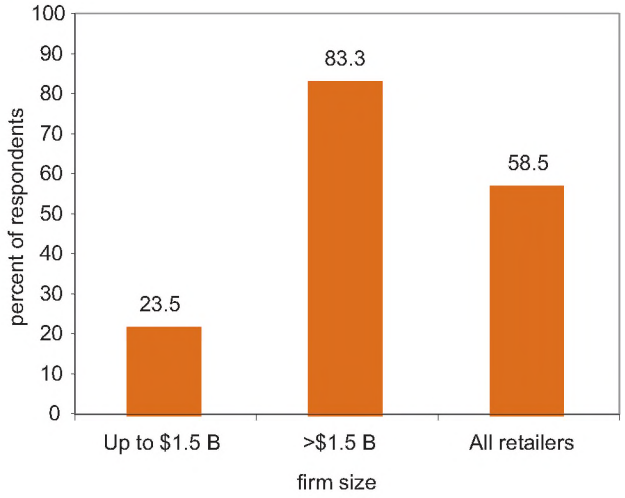


FIGURE 3.2

Percent of Retailers with Produce Category Managers by Size



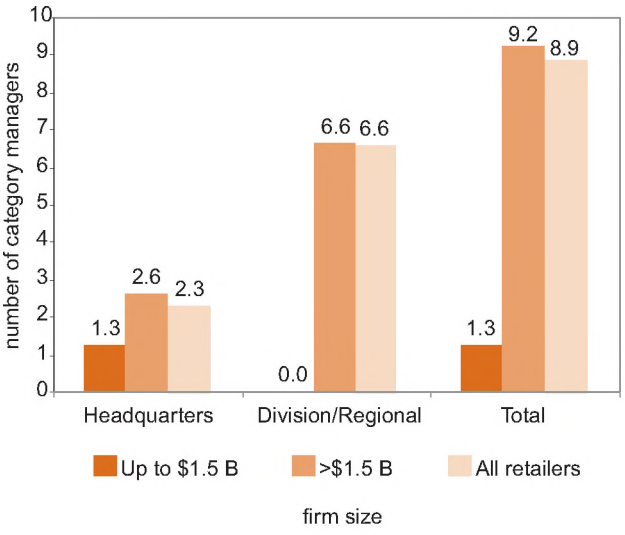
60.9 percent of large firms employ buyers who are located at headquarters. For these large firms, it appears that they have shifted their buying operations to divisional and field offices. Of the 56.5 percent of large firms with divisional buyers these produce executives currently report employing 13.9 individuals who are located in divisional offices. While only slightly more than one-fifth of large firms report employing field buyers (21.7%), these produce executives representing large firms report employing an average 21.8 field buyers per firm.

Category management continues to grow in importance within the produce department. Currently, 58.5 percent of respondents to this study report having produce category managers. Only 23.5 percent of small firms employ categoy managers while 83.3 percent of firms with annual sales above $1.5 billion have added category managers to their produce departments (Figure 3.2).

The number of category managers per firm varies considerably according to firm size. Currently, on average, there are 8.9 category managers in those firms reporting having them. Yet the difference between small and large firms is considerable: small firms report 1.3 category managers and large firms check in with 9.2 category managers per firm (Figure 3.3). Just two years ago, produce executives who participated in *FreshTrack*

FIGURE 3.3

Number of Retailer Produce Category Managers by Size



1999 indicated having an average of 3.5 category managers per firm with large firms reporting 6.8 produce category managers in their companies.

Perhaps as a result of this decrease in the number of produce buyers, particularly within the largest U.S. supermarket chains, grower/shippers revealed a certain

Consolidation Confuses Shippers' Selling Strategies

The spate of retail consolidation has left in its wake many perplexed produce shippers. And the issue is not simply concern about what is often perceived as fewer buying outlets remaining after retail companies combine. This latter concern, although real to be sure, is a long-term issue.

At the heart of a different, short term issue is: "Who do we call?"

In "pre-consolidation" days, shippers had clear, traditional channels of communication with most of their retail accounts. They knew who to call for various types of orders and for various commodity deals. However, once a customer is acquired by another company, the traditional channels often blur.

First, some background. Although a number of models exist, in many cases, the major acquiring retail companies have organized their procurement organizations into three principal offices: headquarters, divisional offices, and, in some cases, field buying offices. At headquarters, policy for the chain is developed, major promotions are frequently initiated, and many times specific brands or labels are authorized for division or field buying. The vast majority of the produce purchase orders (POs) for grower/shippers are produced at the division produce buying offices, generated from the accumulated store orders in the particular division. In the case of those firms with field offices, however, the actual buying—perhaps as much as 85 percent of all orders—is transacted at the level of their field buying offices.

Several of the major supermarket companies organize their produce procurement organizations around 8 to 12 field buying offices, spread strategically around the country in the key production areas. Normally, each office may employ 2 to 5 buyers who are responsible for filling the POs transmitted to them from the

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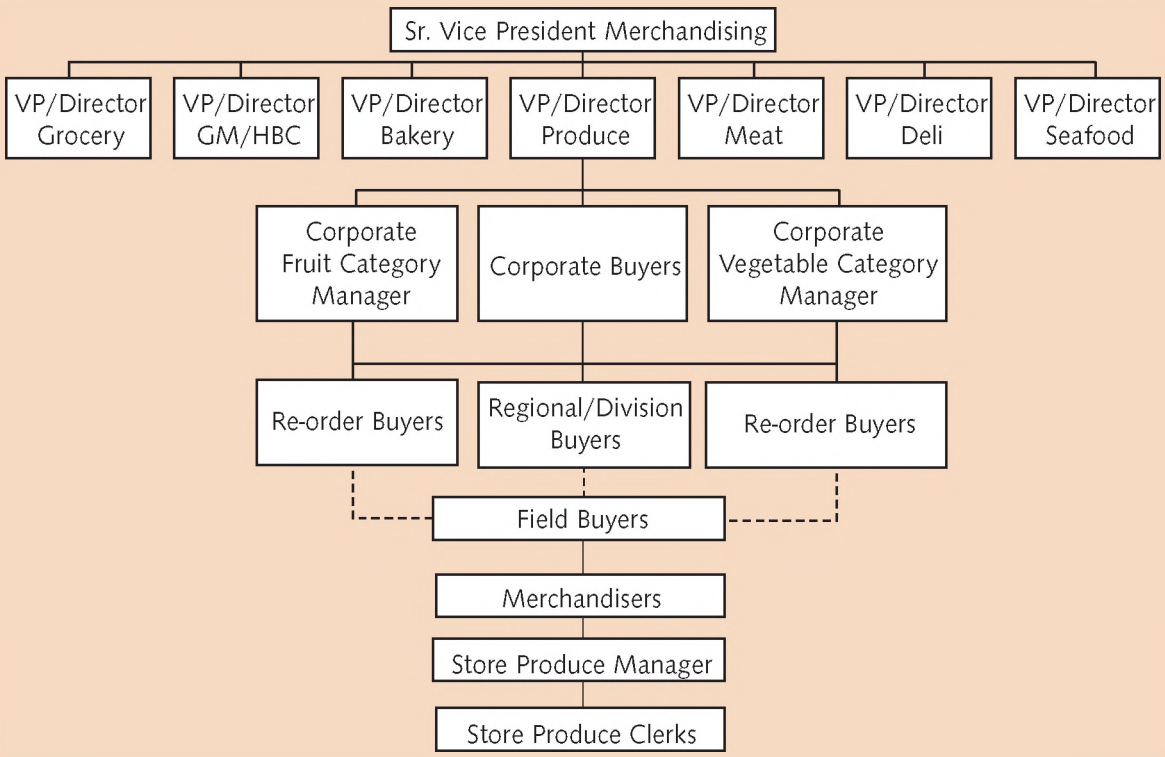
Typical Organization of a Supermarket Produce Department



divisional offices. The field office may engage "birddogs" whose job it is to actually pay visits to competing fields and packing sheds to inspect daily produce quality conditions. These field buying offices may be transient as a function of the seasonality of certain commodities.

Many shippers have expressed frustration about the confusion that apparently exists in many sales transactions today because it is not always clear whether they should call the local field buying office, the divisional operating company or, occasionally, even the headquarters. What's more, even when it appears fairly clear what the retailer's "official" policy may be, nearly all shippers reported at least partial success when making sales calls at every level in an buying organization to strike a deal. Eventually, with such aggressiveness, a transaction may be consummated. ◆

A New Buyer-Seller Paradigm

In the produce industry, like many others, the principal communication between supplier and customer has taken place, almost exclusively, via the buying agent and the sales agent. In days past, this seemed appropriate since the only factor that separated the produce commodity at shipping point from the same commodity at arrival point was price. And price was the subject of nearly all of the negotiation between buyer and seller. But that was yesteryear.

Today, progressive produce sellers explain that it is no longer sufficient to discuss only price. Perhaps not even appropriate! Today, a greater number of supermarket companies are being asked to differentiate themselves from their competitors on the strength and uniqueness of their produce departments. Thus, today, other factors play an equal or greater role than price in the relationship between the buying organization and the selling organization: quality, variety, information, safety, taste, and reliability are now more important to produce customers than at any time in the past. Yet many managers on the produce buying and selling desks simply do not have access to all of the information required to negotiate with one another knowledgeably about these critical non-price factors.

Borrowing perhaps from their colleagues in dry grocery marketing where these relationships have been building for a decade or more, some leading produce shippers are today beginning to create "teams" to deal with customers. Such teams are formulated based on the belief that contemporary organizational relationships are too important to leave to just buyers and sellers. Instead, in these teams, buyers are placed alongside their retail category managers, re-order buyers, quality assurance personnel, warehouse managers and even consumer affairs directors to interact with their counterparts in the sales organizations. Thus, rather than have a buyer complain to a sales agent that a certain order has been received in poor condition, only so the sales agent can in turn make numerous frantic calls to determine the cause of the condition problem, now leading companies simply have their respective quality assurance personnel speak to one another. Such expediting eliminates most mis-communication and speeds up problem resolution.

Indeed, a few leading shippers have formalized this process with various forms of seller-buyer partnerships. These often take the form of special seminars at the shipping facility or production area established for entire teams of retail produce professionals—from warehouse to store—from one or a small number of participating retailer/wholesaler customers. The agendas of such shipping point seminars are intended to allow the retailar/wholesaler to more fully appreciate the positioning, cultural practices, and unique features of fresh produce—including, for example, the high degree of perishability—in the challenging environment of the U.S. supermarket channel. Several noted California producers have established "universities," whereby they can lavish their hospitality upon their buyers in the form,

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often, of entertainment, while, in serious seminars, educating them on the special nature and opportunities with their particular commodity. Such buying "visits" to shipping point(s) generally result in a superior buyer's understanding of the vendors' typical dilemmas. Ideally, the industry result of such collaboration is improved coordination and performance, systemwide. PMA itself has already integrated this team philosophy into its new Retail Produce Solutions Conference begun in 2001. ◆

level of confusion when asked: "Who do you call when trying to make a sale?" The accompanying sidebars reveal their strategies for competing in this consolidated retail world.

Sources of Produce

Produce is typically purchased by supermarket buyers through one or more of the following sources: grower/shippers, produce wholesalers, general-line grocery wholesalers, brokers, and importers. Survey respondents indicate that 74.9 percent of all produce is currently shipped directly from production areas to supermarket distribution centers, whether the transactions are actually consummated by shippers' sales people or brokers (Figure 3.4). This figure has risen substantially since *FreshTrack 1999* was published. Just two years ago survey respondents indicated that 61 percent of their produce was sourced directly. It is interesting to further examine the results and predictions made by produce executives just 2 years ago. As they looked ahead to 2004 they predicted that direct sales would account for 64.5 percent of total produce sales. It appears that this trend to buy "direct" has accelerated faster than produce executives predicted only two years ago as evidenced by this year's survey results. While direct buying accounts for the majority of produce procured, currently 21.5 percent is bought from a produce wholesaler, and 3.1 percent is procured from a general-line wholesaler (Figure 3.4).

Examining the results from *FreshTrack 2001* confirm the trend established and reported several years ago by McLaughlin and Perosio (1994) which suggested that direct buying was taking the place of historic methods of procurement such as terminal markets and produce sourced from brokers. That is, as the years go by and as produce executives look to the future, once again, the share of produce sourced from brokers and produce wholesalers continues to decline while produce procured from a general-line wholesaler shows a very slight increase (Figure 3.4).

Supermarket companies with annual sales in excess of $1.5 billion report the greatest use of direct buying. Currently, buying direct accounts for 88.3 percent of all of their produce purchases. Interestingly, as these produce executives look ahead 5 years they continue to predict the same percentage of their produce purchases will be procured in this way (Figure 3.5). Consequently, their use of brokers and produce wholesalers continues on a long-term decline as direct buying from grower/shippers continues to be favored.

As would be expected, produce executives from smaller firms currently rely heavily on produce whole-

FIGURE 3.4

Sources of Produce: All Retailers by Year

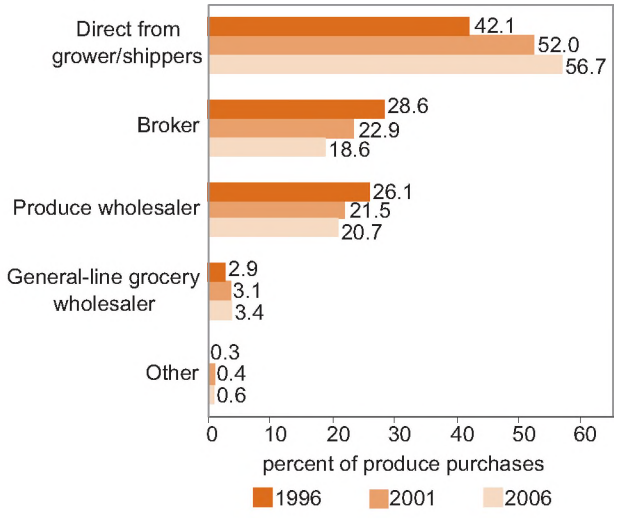


FIGURE 3.5

Sources of Produce: Retailers with Sales over $1.5 Billion

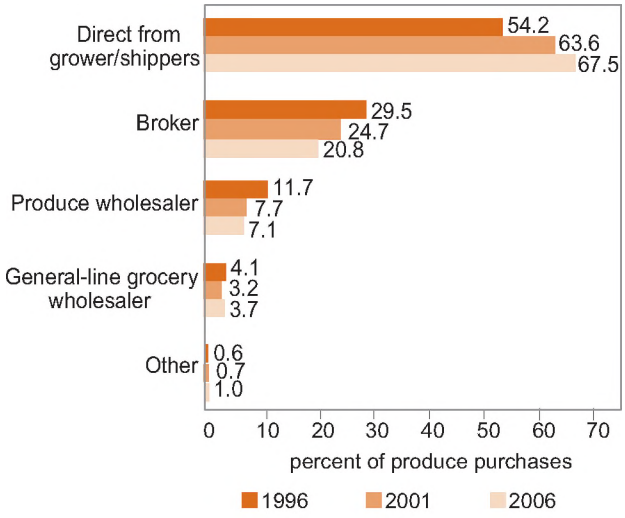
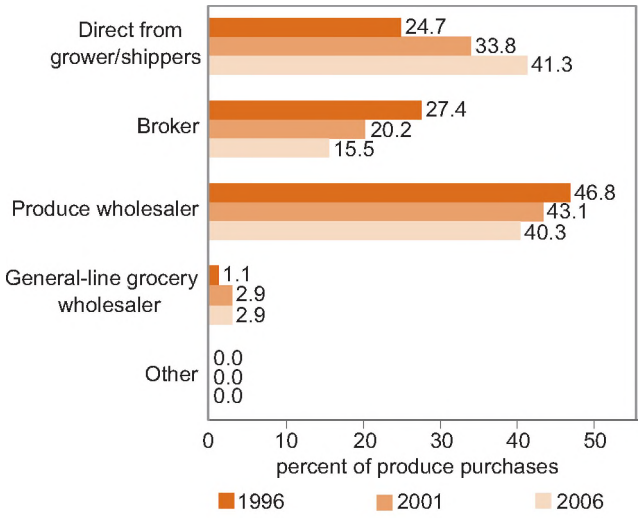


FIGURE 3.6

Sources of Produce: Retailers with Sales up to $1.5 Billion



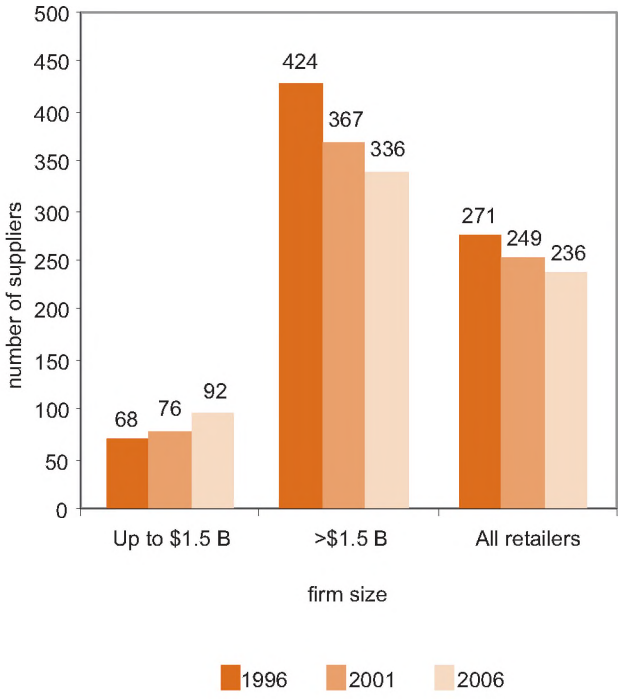
salers for their produce needs. Currently, 43.1 percent of the produce from smaller firms is purchased through a produce wholesaler. However, that number is expected to decline to 40.3 percent in 5 years. While the percentage of produce procured from produce wholesalers and brokers continue to decline, once again, sourcing direct from grower/shippers is on the rise. Produce executives representing smaller firms report increasing their direct purchases from only 24.7 percent in 1996 to an expected 41.3 percent by 2006 (Figure 3.6).

Produce Suppliers

The number of produce suppliers utilized by produce executives varies significantly according to firm size. Large firms with sales in excess of $1.5 billion currently rely on 367 different suppliers, down from 424 in 1996. This downward spiral will continue as these large firm executives plan to once again reduce the number of suppliers to 336 in 5 years (Figure 3.7). On the other hand, small firms who rely quite heavily on wholesalers for their produce needs, report utilizing 76 different produce suppliers, an increase over 5 years ago when 68 suppliers were used. As produce executives look

FIGURE 3.7

Retail Produce Suppliers by Size



ahead, contrary to the trend painted by large-firm produce buyers, these small firm buyers expect to use more suppliers—92 suppliers by 2006 (Figure 3.7). Also, More suppliers have identified these smaller retailers as a direct selling opportunity.

Concentration of Produce Purchasing

Produce executives were asked to indicate the percentage of their produce purchases that are procured from their top 10 suppliers. Currently, for all firms, 68.2 percent of their produce originates from 10 suppliers, up from 61.0 percent in 1996 (Figure 3.8). This number is expected to increase to 71.6 percent in 5 years. Firms with annual sales of less than $1.5 billion report a higher percentage of their sales originating from 10 suppliers. Currently, 81.1 percent of their produce purchases come from 10 suppliers, a significant increase from 1996 when 74.7 percent of produce was procured from the top 10. Further, these executives expect to purchase still more produce from their top 10 suppliers, anticipating that 83.3 percent of their produce will originate from just 10 suppliers in 5 years (Figure 3.8).

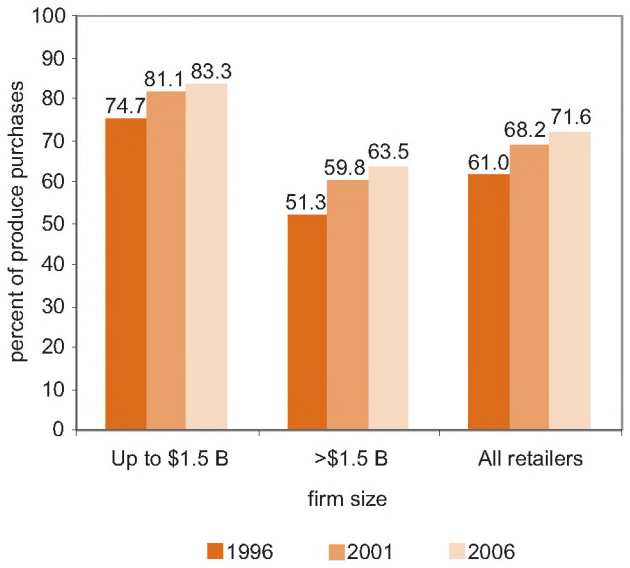
While produce executives representing large firms paint a similar picture to their smaller firm counterparts, they do not expect to concentrate their produce purchasing quite as heavily with only 10 suppliers as smaller firms. Five years ago these executives reported that 51.3 percent of their produce purchases were procured from 10 suppliers (Figure 3.8). Today that number has risen to 59.8 percent and is expected to rise to 63.5 percent by 2006 (Figure 3.8).

Opportunity Buying

Occasionally, produce buyers have the opportunity to purchase produce on the "spot" market. This may become necessary to balance supply or to take advantage of an attractive price in an oversupply situation. Currently, for the average firm, produce executives

FIGURE 3.8

Importance of Retailers' Top 10 Suppliers by Size and Year



report purchasing 9.5 percent of their produce in this manner, a decline from 10.6 percent 5 years ago (Figure 3.9). This decline is expected to reach 9.0 percent by 2006. This downward spiral was also reported in *FreshTrack 1999*.

Produce executives from large firms have established this downward trend for spot buying. In 1996, 11.7 percent of their produce purchases were spot buys. Currently only 9.7 percent is considered a spot buy while in 5 years they expect to only purchase 8.7 percent of their produce purchases through the spot market (Figure 3.9).

On the other hand, for firms with annual sales of less than $1.5 billion, their use of the "spot" or "opportunity" buy has remained nearly constant. During the 10-year span for which they offered responses, their replies vary only very slightly, hovering around the current 9 percent mark (Figure 3.9).

Contracts

Produce executives were asked to determine the percentage of their produce purchases made under

FIGURE 3.9

Percent of Produce Purchased through "Spot Buying" by Size and Year

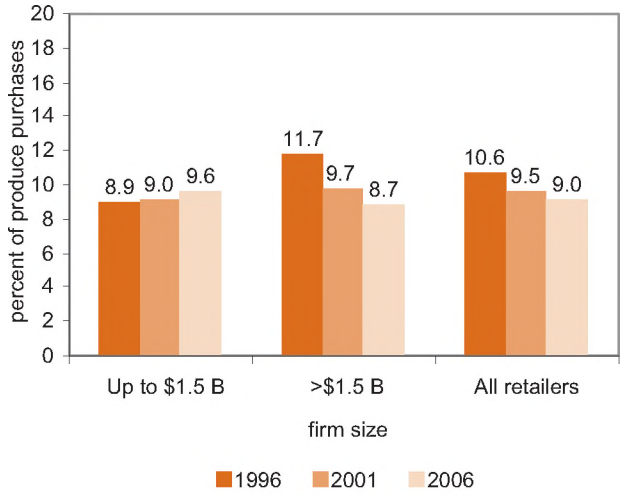
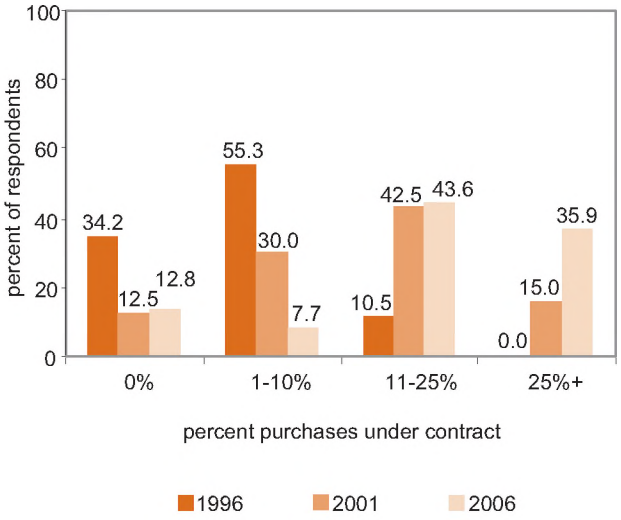


FIGURE 3.10

Retailers Use of Contract Purchasing: All Retailers



some type of contract with suppliers. On average, only 12.5 percent of all retail firms do not engage in any type of contracting (Figure 3.10). This figure decreased considerably from 1996 when 34.2 percent of all firms indicated they did not use contracts. Although it appears that more and more firms are using contracts for at least some portion of their produce purchases, still 12.8 percent of survey respondents indicate that they have no plans to use contracts for purchasing produce (Figure 3.10).

Despite this small contingent of firms that do not have any plans to engage in contract pricing, the majority of firms do use contracts and are using them for greater percentages of their produce purchases. Currently, 30 percent of respondents use contracts for at least 10 percent of their purchases while 42.5 percent of produce executives use contracts for between 11 and 25 percent of their produce purchases. Finally, 15 percent of respondents utilize contracts for 25 percent or more of their produce purchases (Figure 3.10).

Contracts appear to be gaining in popularity—at least on the part of retailers. *FreshTrack 2001* respondents reported that in 1996, 10.5 percent of them were using contracts for at least 11 percent of their produce purchases. Today, that number has increased to 57.5 percent of firms and, by 2006, 79.5 percent of survey respondents predict they will engage in contracts for at least 11 percent of their produce purchases (Figure 3.10).

Supermarket retailers with annual sales in excess of $1.5 billion are the heaviest users of contracts. Currently, only 4.2 percent of these firms do not use contracts while 20.8 percent of firms use contracts for between 1 and 10 percent of their produce purchases. Fifty percent of large firms utilize contracts for between 11 and 25 percent or their produce purchases while 25.0 percent of firms have 25 percent of more of their produce purchases under contract (Figure 3.11). Looking ahead, more firms plan to use contracts for more produce purchases than ever before. By 2006, 87 percent of these large firms plan to use contracts for at least 11 percent of their produce purchases while almost half (47.8%) of these large firm produce executives expect to use contracts for 25 percent or more of their produce purchases (Figure 3.11).

Since many small retailers utilize different procurement strategies (full-line grocery wholesalers vs. direct purchasing from grower/shippers) than large firms, it is not surprising that they typically do not use contracts as

aggressively as large firms. Currently 25.0 percent of small firms do not use any contracts when purchasing produce while 43.8 percent of small firms do use contracts for a small portion (between 1 and 10 percent) of their produce purchases. Almost one third (31.3 %) of firms use contracts for between 11 and 25 percent of their produce purchases (Figure 3.12). Within the next 5 years these produce executives representing small firms plan to use contracts more heavily, in fact over two-thirds (68.8%) of small firms will be using contracts for at least 11 percent of their produce purchases in just 5 years (Figure 3.12).

FIGURE 3.11

Use of Contract Purchasing: Retailers with Sales over $1.5 Billion

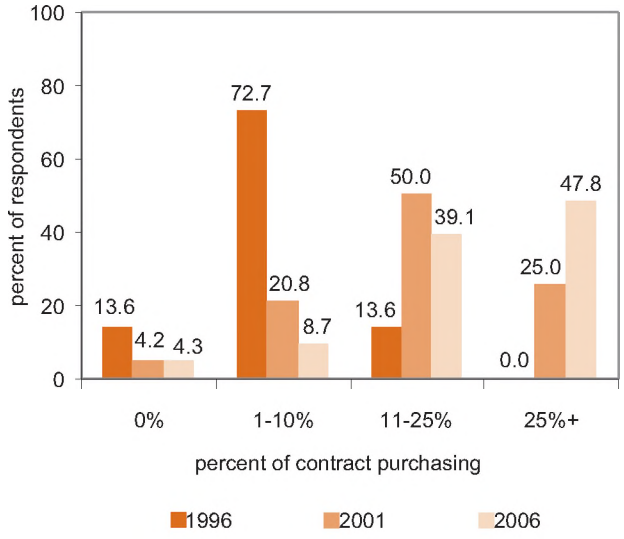
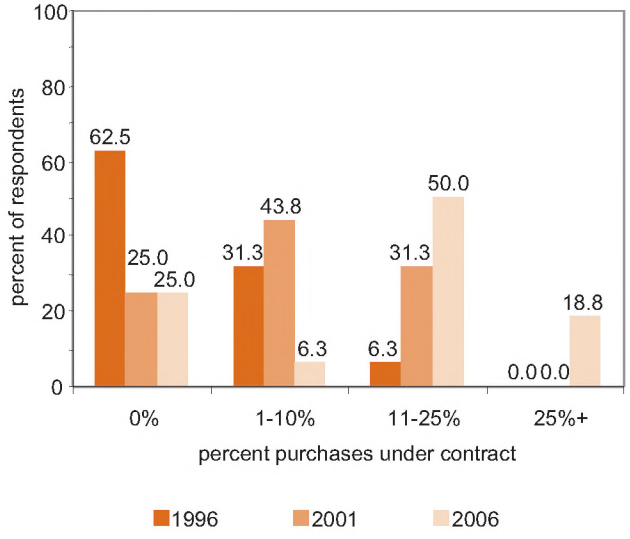


FIGURE 3.12

Retailers Use of Contract Purchasing: Retailers with Sales up to $1.5 Billion



Contracting in Fresh Produce: Wave of the Future?

The data gathered from this year's *FreshTrack 2001* retail respondents corroborate a trend established in virtually all of the previous *FreshTrack* studies: buyers and sellers of fresh produce are departing from traditional practices of transacting sales through daily spot sales in favor of engaging in a wide range of contractual agreements. Of course, this is not happening overnight, but the evidence collected in this year's study demonstrates that it is happening relatively quickly for a number of reasons. Opportunistic buying and selling of merchandise, where one or the other party finds itself facing unusually unfavorable short-term conditions, is not part of the long-term mission and operating strategy of the ever larger, sometimes multinational, companies now part of the community of produce buyers and sellers. Indeed, many of these large companies are now playing a channel-dominant role. These companies have been more aggressive in adopting supply-chain management practices where the objective is year-end, not weekend, results. Their interest is net returns, not gross returns. What's more, in recent years, the produce industry has experienced more "long" than "short" situations. Such a condition generally shifts the advantage of contracting to the buying side of the market,

continued ☛

once again providing retail buyers additional motivation over the past several years to increase their contracting.

Despite a number of considerable disadvantages, in general, today's buyers and sellers alike appear to be won over by the greater price certainty that contracting makes possible. It facilitates their ad planning, sales, planting, harvesting, and packing decisions. Moreover, it ensures sellers an outlet for at least a portion of their produce and it ensures buyers a source of produce, particularly in difficult supply conditions.

However, high degrees of product perishability, weather uncertainty and resulting price volatility, and structural differences between and among produce buyers and sellers create significant challenges to the design of the produce contract. Contract characteristics range widely from those that are concerned only with quantities and product specifications to those that focus more narrowly on price. Additionally, a growing number of contracts today specify various fees and services that one or the other participant will perform.

The following exhibit provides an illustration of an actual contract developed during the 2001 marketing season (the names of the cooperating supplier and retailer withheld upon request.) In this particular contract, prices to be paid are prominent but so are packaging specifications, quarterly and annual volume targets and, importantly, rebates and promotion. Advertising schedules are laid out, including so-called BOGO ("buy one get one" free) allowances. Finally, it should be noted that natural disasters, crop failures, and "acts of God" clauses are now being routinely included in fresh produce contracts to protect buyers and especially sellers.

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Performance Guidelines

A growing trend within retail buying offices today is the development of formal guidelines to measure supplier performance. Although in the past performance guidelines were used primarily on the non-perishable side of the food business, today retailers are developing and enforcing formal performance guidelines to measure the performance of grower/shippers. *FreshTrack 2001* participants were asked to indicate whether or not they have formal performance guidelines for produce suppliers. Currently 36.6 percent of respondents have such guidelines while another 34.1 percent expect to have them in place within the next 3 to 5 years (Figure 3.13). Large firms make greater use of performance guidelines. Currently 48.0 percent of large firms have guidelines in place while 32.0 percent of firms expect to have produce vendor performance guidelines in place within 3 to 5 years (Figure 3.13).

In contrast to large firms, 43.8 percent of small firms do not currently have performance guidelines for grower/shippers, nor do they plan to develop them in the next 3 to 5 years (Figure 3.13). Only 18.8 percent of these small firms report having formal performance guidelines while an additional 37.5 percent of firms do plan to develop guidelines within the next 3 to 5 years (Figure 3.13).

In 3 to 5 years, therefore, 70.7 percent of all retail firms anticipate establishing and enforcing performance guidelines with suppliers. Just over half (56.3%) of small retailers plan to utilize these guidelines while 80.0 percent of large retailers will be utilizing performance guidelines with their produce suppliers (Figure 3.13).

Retail produce executives were asked to elaborate on their use of performance guidelines for their produce vendors. First they were asked: "Are some suppliers exempt from these guidelines?" On average for all firms, 16.1 percent of respondents said "yes" there are exemptions from these guidelines, while 20.0 percent of large firm produce executives allow exemptions and only 9.1 percent of small firms permit exemptions (Figure 3.14). Produce executives were further asked to elaborate on the circumstance under which they make exemptions. Typically, when exemptions are granted by retail produce executives they are extended primarily to very small grower/shippers who, by virtue of the size of their growing/shipping operations, could not reasonably

Sample Fresh Produce Contract Between Actual Produce Supplier and Retail Buyer, 2001

Variety A

1. Pricing*–F.O.B. (On Slipsheets) EDLP

24/1's, 12/2's, 8/3's (resealable)	$11.62
40/1's, 20/2's	$18.95

2. Volume Incentive (Quarterly)
Supplier will rebate to *Retailer* $0.10/case (24# equivalent) for all purchases made in a quarter where target volumes are exceeded. (Target volumes are 10% greater than the summation of *Retailer* members' prior year's quarterly purchases.)

If the *Retailer's* annual purchases exceed the annual target volume, *Supplier* agrees to pay all quarterly rebates, even if some individual quarterly targets were not achieved.

	Quarterly Target Volume
Quarter 1–April 1, 2001–June 30, 2001	327,982
Quarter 2–July 1, 2001–September 30, 2001	300,810
Quarter 3–October 1, 2001–December 31, 2001	370,075
Quarter 4–January 1, 2002-March 31, 2002	327,055
Annual Target Volume	1,325,922

Variety B

3. Pricing*–F.O.B. (On Slipsheets)

	Market Price	Everyday Price	Ad**	B.O.G.O.***
48/1's, 24/2's, 10/3's	≥$9.55	$1.00 Off Mkt.	50¢ Off	$1.00 Off
	=$9.05	$0.50 Off Mkt.	50¢ Off	$1.00 Off
	≤$8.55	Market	50¢ Off	$1.00 Off

** Our ad program offers one ad week, seven consecutive days, each month on each item! For example, 1# Cellos can be promoted one week and 2# Cellos on another.
*** B.O.G.O. price available once per quarter on each item in lieu of one monthly ad.

4. Pricing–F.O.B. (On Slipsheets)

	Everyday Price	Ad**	B.O.G.O.***
24/10 oz.	$11.00	$10.00	$9.00
12/10 oz.	$ 6.00	$ 5.50	$5.00

** Our ad program offers one ad week, seven consecutive days, each month.
*** B.O.G.O. price available once per quarter on each item in lieu of one monthly ad.

Variety C

5. Pricing* – (On Pallets) F.O.B.
24 dozen – $8.00

6. *Retailer* agrees that *Supplier* will be the exclusive Variety C supplier during the agreement period.

7. *Supplier* agrees to extend the terms of each member's past expired contract and honor all rebates for the time period between the expiration of each member's contract and the beginning of *Retailer* contract.

*In the event that *Supplier* is unable to supply *Retailer* with a quantity sufficient to meet its orders due to weather, crop failure, poor quality, any act of God or other factors beyond *Supplier's* reasonable control, *Supplier* will attempt to give *Retailer* at least one week's notice of the quantity which *Supplier* will supply to *Retailer*. *Supplier* shall not be liable for the failure to deliver the full quantity.

This offer is valid for 30 days from the referenced date of this proposal, which will take effect upon receipt of a signed original agreement. ◆

FIGURE 3.13

Retailer Initiated Supplier Performance Guidelines by Size

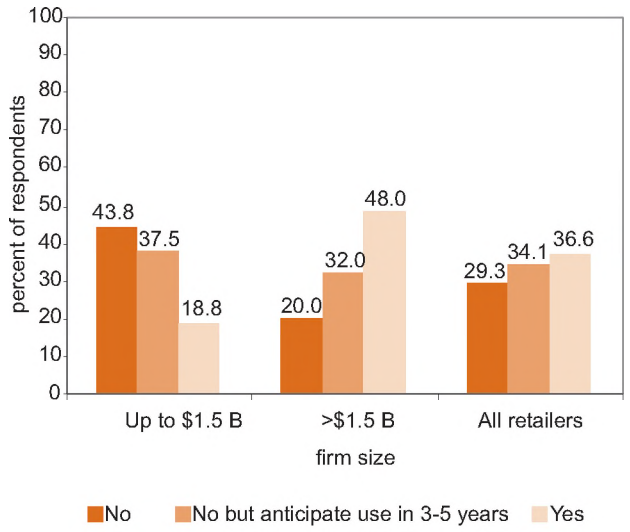
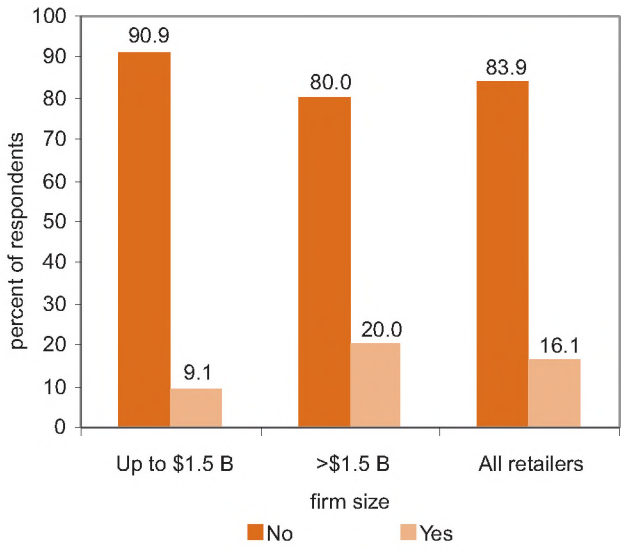


FIGURE 3.14

Suppliers' Exemption from Guidelines by Size



adhere to the procedures put forth in these emerging performance guidelines developed by retailers.

The last question which produce executives were asked regarding performance guidelines was the following: "With what percent of your suppliers are these guidelines routinely enforced?" It appears that once these guidelines are developed they are enforced regularly. On average, for all firms, 92.3 percent of *FreshTrack 2001* respondents indicate that they routinely enforce their produce performance guidelines (Figure 3.15). This number varies very little between the two firm sizes.

Communication Between Buyers and Sellers

Even in this era of lightning speed Internet service and worldwide exchanges, the telephone remains the primary mode of communication between buyer and seller. Although the use of the telephone has eroded over the past 5 years from 73.8 percent to 54.7 percent of all communications being transacted, it is still a primary and important tool for communication (Figure 3.16). As the telephone declines in importance, how-

FIGURE 3.15

Percent of Suppliers with Whom Guidelines Routinely Enforced by Size

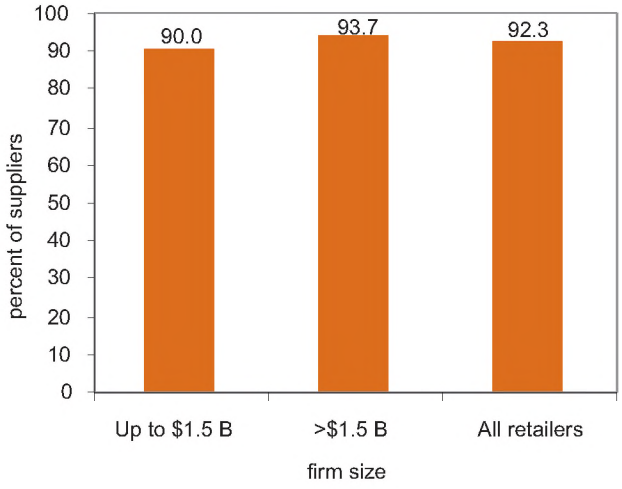


FIGURE 3.16

Methods of Communication: All Retailers

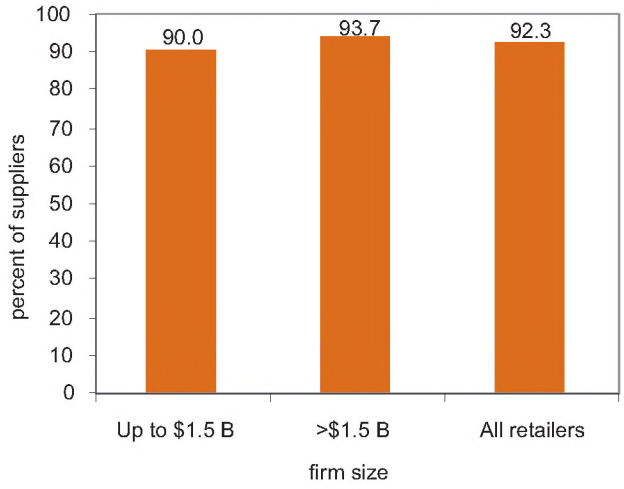
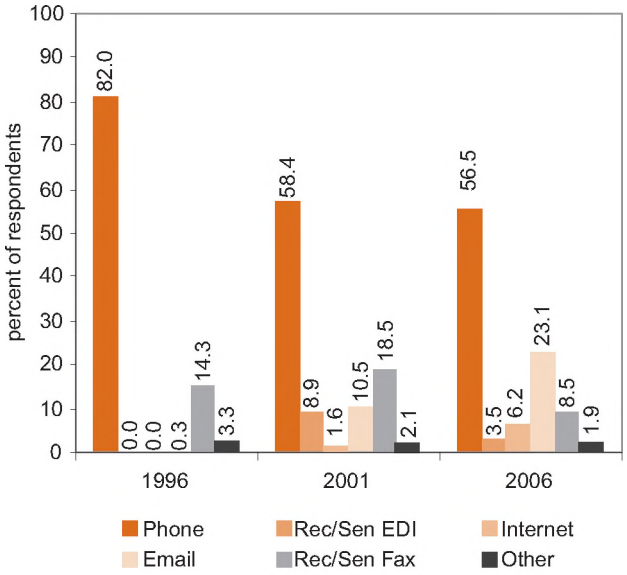


FIGURE 3.17

Methods of Communication: Retailers with Sales up to $1.5 Billion



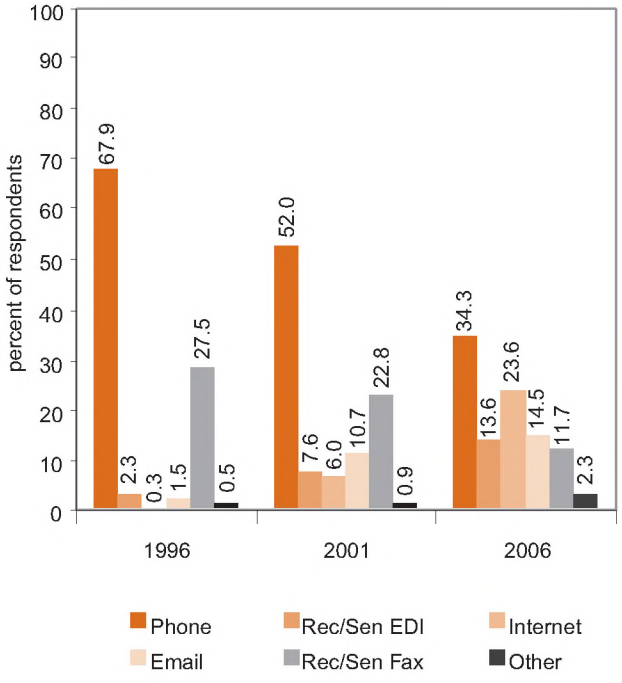
ever, it is not surprising to observe the use of other forms of communication increasing: Electronic Data Interchange (EDI), Internet, and email. Although in general large-firm produce executives use the phone less and rely on electronic forms of communication more than small firm executives, both sets of executives are following the same path toward heavier reliance on electronic modes of communication (Figures 3.17 and 3.18).

Product Order Cycle Time

Produce executives were asked to calculate the average cycle or lead time for both everyday items and promotional items. For the purposes of *FreshTrack 2001*, lead time was defined as "the time between when order placement occurs and when the order arrives at the retailers' warehouse." Currently, for everyday items the average cycle time for all firms participating in this study is 5 days, the identical cycle time as 5 years ago (Figure 3.19). By 2006 produce executives predict one day will be eliminated from today's cycle time bringing it down to just 4 days for everyday items.

FIGURE 3.18

Methods of Communication: Retailers with Sales over $1.5 Billion



Promotional items typically require a longer lead time than everyday items. In order to respond efficiently to a promotion, several functions within the supply-chain must be managed differently. For instance, a grower/shipper may have to custom-harvest and/or custom-pack product for a particular retailer promotion. Retail produce buyers must plan ahead for adequate advertising and promotion to occur. All of this takes time. Five years ago the average lead time for promotional items was 9 days, while today it has dropped to 8 days. Produce executives do not anticipate any change in this 8-day lead time for promotional items by 2006 (Figure 3.19).

The lead time requested by produce buyers representing small firms for everyday items is currently 5 days, down from 6 days in 1996, and anticipated to decrease again to 4 days by 2006 (Figure 3.20). The lead time for promotional items for small firms does not differ significantly from the lead time requested for everyday items. In 1996 these produce buyers required a 7-day lead time which has dwindled to 6 days today and is anticipated to drop to 5 days by 2006 for promotional items (Figure 3.20).

Large firm produce buyers report no change over the past 5 years and anticipate no change over the next 5 years for both everyday and promotional items. Regardless of time period, these buyers request a 4-day lead time for everyday items and a 10-day lead time for promotional items (Figure 3.20).

Transportation

Transportation is a vital link within the produce supply chain. Quick delivery requirements dictated by highly perishable products, as well as the long distances separating production areas from consumption areas, combine to make transportation a critical issue—one that impacts all levels of the supply chain: shippers, wholesalers, retail receivers, and ultimately consumers.

In order to learn more about several key areas within the transportation arena, produce executives were asked a series of questions regarding transportation arrangements, costs, types of truckloads, timeliness of loads, and finally level of rejections encountered at the receiver's dock.

FIGURE 3.19

Average Cycle Time for Everyday and Promotional Items: All Retailers

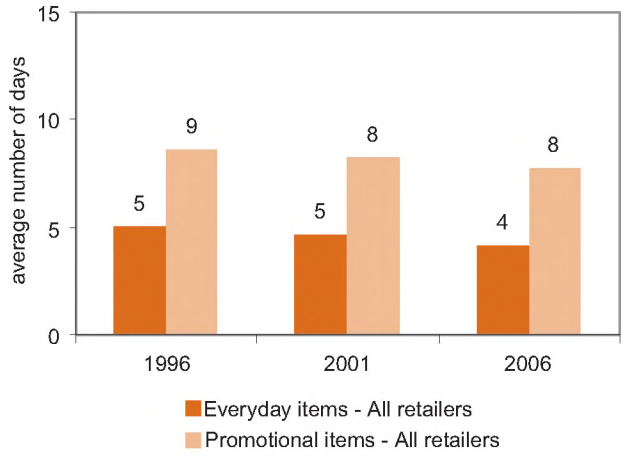
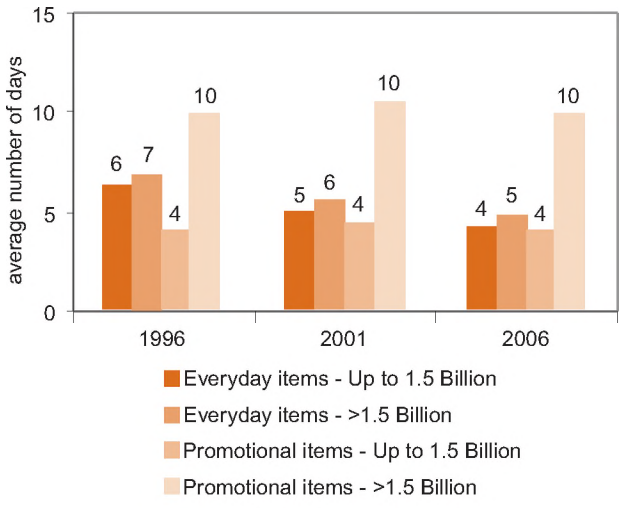


FIGURE 3.20

Average Cycle Time for Everyday and Promotional Items by Size



Just-In-Time May Be Just-In-Case to Shippers

The business world has been recently fascinated with the supply chain and opportunities it holds to shrink excess inventories and manipulate inventories so as to become more efficient. In a study of retail logistics and merchandising activities in the Health and Beauty Care (HBC) category, McLaughlin, Perosio, and Park (1997) reported on cycle times for HBC products. At that time, retailers were working to significantly reduce cycle times from 8.3 days in 1996 to 3.8 days in 2000 for everyday items (see figure below). What's more, they anticipated reducing cycle times from 11.0 to 5.7 days for promotional items.

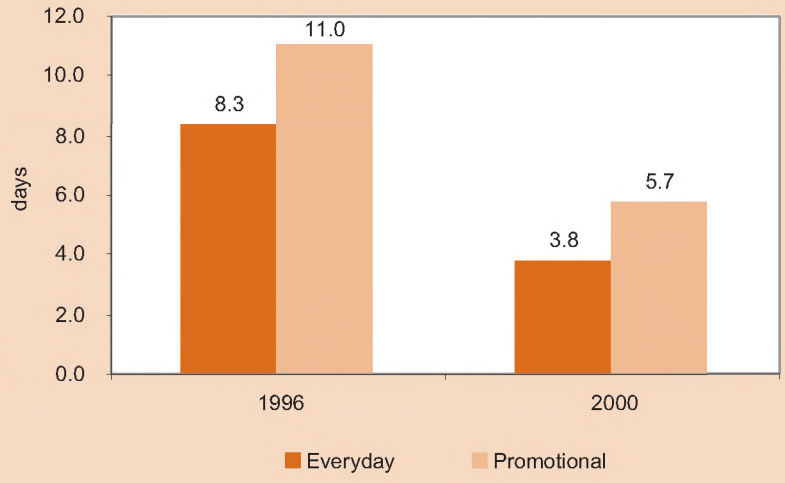
Because produce is so perishable and, in general, becomes less valuable the longer it is held in inventory, the produce distribution system has always had a "just-in-time" approach. Indeed, retailers have reported little or no change in their cycle times for produce orders and deliveries (see Figure 3.19).

In focus groups and interviews with produce suppliers, the majority also agrees that cycle times are basically the same.

However, a small number of shippers did report significant changes in the ways orders are communicated and handled. These changes are forcing adjustments to the distribution system. For instance, in efforts to keep inventory at a minimum while still ensuring high quality, retail orders may be placed more frequently but in smaller quantities. And because inventories are being decreased in distribution centers and in stores, retailers often need "instant shipping" to fill in shortages in product.

Retailers today make more last-minute adjustments to those orders—changes made even as orders are being assembled from the packing line or relayed to the picking crews. These changes can be cancellation of loads, reduction of loads, or additions to loads. In their own efforts to cope with these adjustments, some shippers indicate that they now carry extra inventory in case orders increase at the last minute, even after the

Order Cycle time for HBC by Type of Item, 1996 and 2000



Source: McLaughlin, et al., 1997

continued ☛

purchase order is received. So reductions of inventories at the retail end of the supply chain have often caused increases in inventories at the beginning of the supply chain.

On a positive note, shippers indicated that sales and production of packaged, value-added produce is much easier to forecast, alleviating last-minute swings in orders and reducing inventory risk for both buyer and seller. Less perishable products, such as storage items and garlic, also experience stable orders, and cycle times for everyday items are not really an issue with these products.

How Are Books and Produce Alike?

The book industry, not unlike the produce industry, deals with a vast number of SKUs in an environment where the retailer's focus is to minimize inventories. And as booksellers intensify their efforts to compete on and off the Internet, they are relying more heavily on the efficient management of their supply chain. In order to maximize space for best sellers, book retailers avoid stocking slow moving titles, making consumers order them for delivery in a few weeks. Distributors and publishers may see increased pressure for faster delivery as competition heats up and thus tend to hold larger inventories in order to, more or less, instantly supply retailers with titles that consumers order at the store level (Abernathy, et al., 2000).

Printing on demand, which uses digital printing technology, holds promise for publishers. While fast moving titles continue to be printed in batches, slow moving titles can be printed on demand to specified locations or regions, which speeds delivery and reduces inventory levels.

The produce industry, not unlike the book industry, deals routinely with an increasing number of SKUs in an environment where retailers are focusing efforts to minimize inventories. In order to accommodate retailers' last-minute changes in their orders, suppliers have noted a need to adjust backroom inventories, so that product is always on hand for any increases in a customer's order.

Unlike the book industry, however, production on demand does not seem possible—until we can implement Star Trek replicator technology! Until that time, Collaborative Planning, Forecasting, and Replenishment (CPFR) offers a partial solution. Planning—more accurate orders, provided more quickly to the supplier, or even calculated by the suppliers themselves—may ease inventory costs at the supplier level.

Another aid that has surfaced during the past 3 to 4 years is supplier-owned distribution centers established closer to the U.S. markets. These distribution centers, often owned or controlled by West Coast or Southern suppliers, can be used to fill in customer orders and ensure product perfectly ripened to customer needs. One may ask: Is not this the wholesaler distribution model? ◆

Currently, on average, retailers arrange transportation for just over half (50.8%) of their produce purchases, citing very little change from 5 years ago (Figure 3.21). This figure is quite consistent with the *FreshTrack 1999* results as participants indicated arranging transportation for 46 percent of their produce purchases. Looking ahead to 2006, this year's survey participants expect to arrange transportation for 46.8 percent of their purchases (Figure 3.21).

Firm size has a dramatic impact on the amount of transportation a retailer will arrange. Small retailers arrange for trucking for only 20 percent of their produce purchases, a number that has seen a steady decline since 1996 and is expected to further decline over the next 5 years (Figure 3.21). On the other hand, larger retailers make transportation arrangements for over two-thirds of their produce purchases (Figure 3.21).

Survey respondents were asked to indicate transportation costs as a percentage of produce purchases. For

FIGURE 3.21

Retailer Arranged Transportation by Size and Year

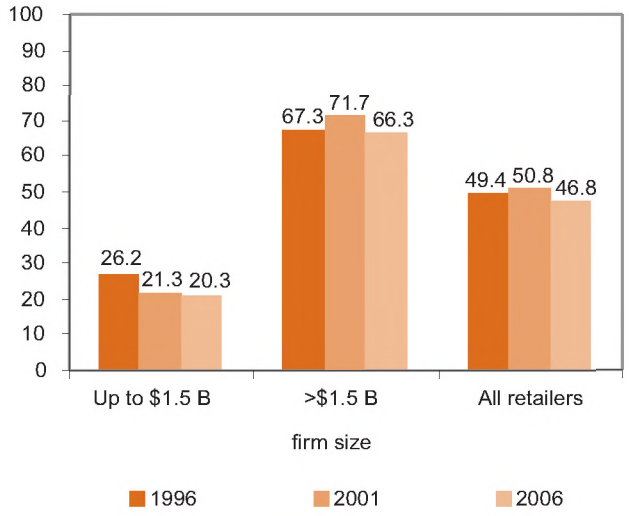
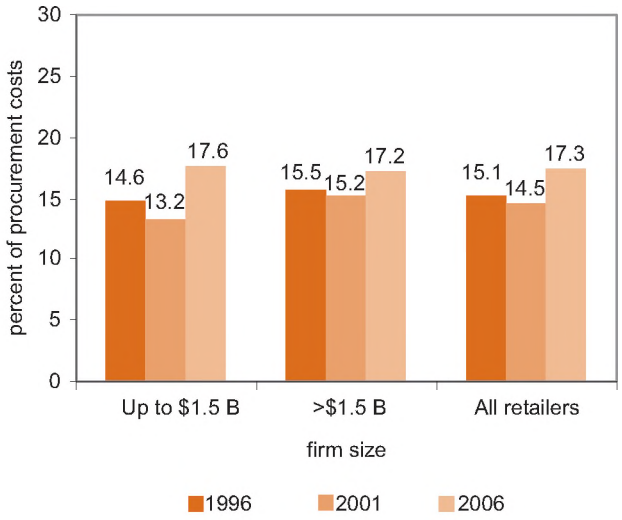


FIGURE 3.22

Produce Transportation Costs as a Percent of Total Produce Purchases by Size and Year



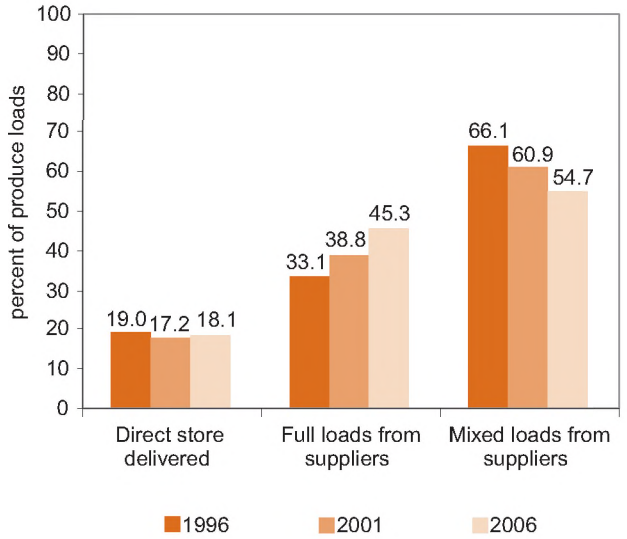
an average firm participating in *FreshTrack 2001*, transportation costs account for 14.5 percent of retail produce purchases. Firm size does not appear to influence transportation costs as all firm sizes responded very similarly (Figure 3.22).

It appears that in just 2 years transportation costs have declined perhaps due to new efficiencies within the supply chain. *FreshTrack 1999* participants indicated that on average, transportation costs were 16.8 percent of produce purchases, while today that figure has dropped to 14.5 percent.

Minimizing total transportation costs involves the continual balance of maximizing truck loads and minimizing time to market. Since few receivers are large enough to justify "straight-loads" of all commodity shipments, mixed loads (often requiring truck stops at several packing houses) offer efficiencies in transportation and maximizes product freshness. *FreshTrack 2001* participants were asked to describe the nature of produce loads—specifically what percentage of purchases are 1) delivered directly to stores (DSD), 2) full loads, and 3) mixed loads. On average, currently 60.9 percent of loads are mixed, 38.8 percent are full loads

FIGURE 3.23

Types of Produce Truck Loads: All Retailers



from suppliers, and 17.2 percent of loads are delivered direct to the store (Figure 3.23). Looking back to 1996 and ahead to 2006, a strong trend is forming as retail produce executives are maximizing full loads from suppliers while attempting to decrease mixed loads.

Small firms typically report more mixed loads and more direct store delivery of produce than large firm buyers; however, even small firms expect to receive more full loads in the future (Figure 3.24). Firms with annual sales in excess of $1.5 billion only receive 3.7 percent of their loads at individual stores while 43.0 percent of loads are full loads from suppliers and 54.9 percent of their produce arrives as mixed loads (Figure 3.25).

The last two areas investigated within the transportation arena focus on retail receiving. First retail produce executives were asked to indicate the percentage of on-time arrivals of produce they receive at their warehouses. Currently 90.8 percent of all produce loads arrive on time, up from 86.9 percent 5 years ago (Figure 3.26). Firm size does not make a considerable difference regarding the percentage of on-time arrivals. Furthermore, as *FreshTrack 2001* participants look ahead 5 years, regardless of firm size all executives expect on-time arrivals to improve.

FIGURE 3.24

Types of Produce Truck Loads: Retailers with Sales up to $1.5 Billion

FIGURE 3.25

Types of Produce Truck Loads: Retailers with Sales over $1.5 Billion

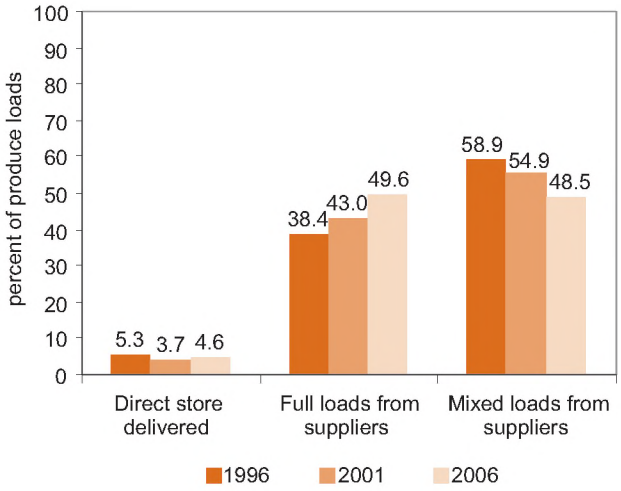
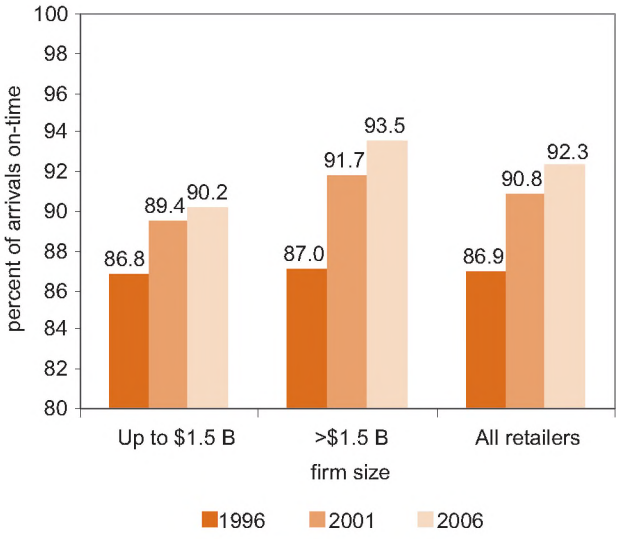


FIGURE 3.26

On-Time Arrivals of Produce Loads by Size



Unfortunately, for a variety of reasons, a certain percentage of produce loads are rejected at the retailer's warehouse. Currently for the average firm in this study, 3.7 percent of the loads that arrive at their warehouses are rejected, down from 4.4 percent of rejected loads 5 years ago. By 2006 produce executives expect to reject fewer loads—only 3.4 percent of total loads (Figure 3.27).

Large firms tend to reject more loads than smaller firms. Five years ago 5.2 percent of loads were rejected and today that number has dropped to 4.0 percent. By 2006 these large firm produce executives anticipate a rejection rate of 3.7 percent of loads (Figure 3.27).

Produce executives representing small firms have been consistent in their rejections levels over time. Whether these executives look back 5 years or ahead 5 years their records and predictions match the current situation—that is a rejection rate of about 3.1 percent of loads (Figure 3.27).

Produce Shrink

As highly perishable products travel very long distances from production area to major consumer markets, it is inevitable that some shrink will occur. Typically shrink is measured at two points in the supply chain: at the retailer's warehouse and at the retail store. *FreshTrack 2001* participants indicate that on average, for all firms, 7.0 percent of their produce sales are lost to shrink—6.1 percent at the retail store and 0.9 percent at the warehouse (Figure 3.28). There is very little difference between the levels of shrink between large and small firms.

The Buying Process

Summary and Perspectives

- Retail supermarket firms employ fewer produce buyers than just 2 years ago. As the fever pitch of consolidation begins to slow in 2001, one result has been the emergence of several very large supermarket companies. In the past there may have been just one such company, however, today that one company may have evolved into several geographically dispersed operating companies, most of which have retained their produce-buying offices. In the past these individual companies reported independently to their produce buying staff, but today the person-

FIGURE 3.27

Produce Arrivals Rejected by Size and Year

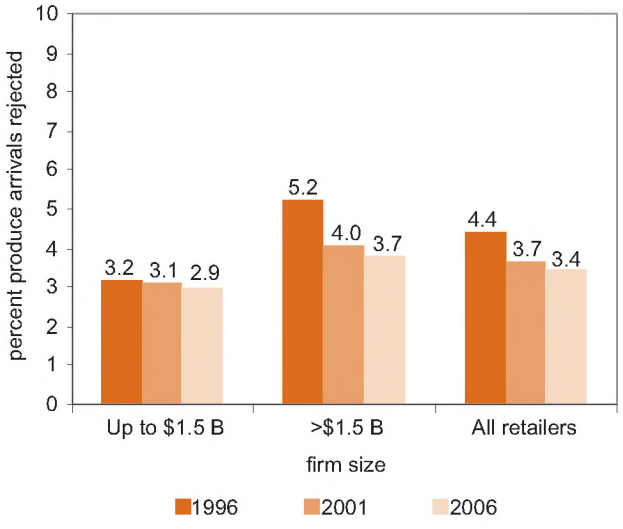
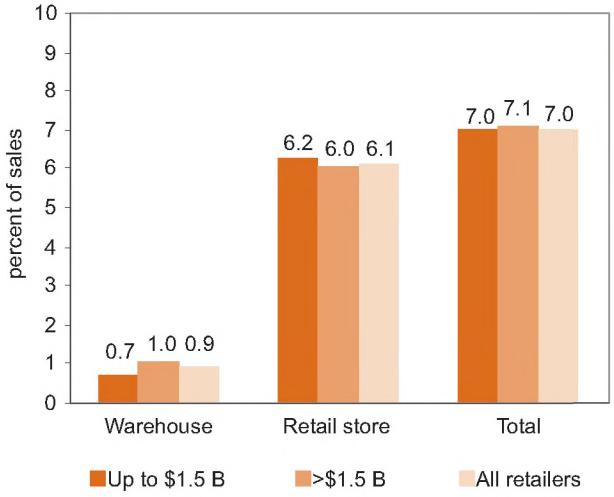


FIGURE 3.28

Produce Shrinkage or Loss Factor in the Warehouse and Retail Store



nel of these dispersed companies are calculated into the parent company's total buying staff, a phenomena which has resulted in several very large retail produce buying offices. It appears that produce buying offices have been "consolidated" in an effort to streamline produce operations.

- Category management continues to show promise as more and more supermarket companies are engaging in category management for their produce departments.
- The trend toward direct buying is intensifying while broker-associated transactions remain in decline.
- Over the past 5 years the number of produce suppliers used by large-firm produce buyers has declined. This trend is expected to continue over the next 5 years. In contrast small firm produce buyers report using more suppliers today than 5 years ago and anticipate that they will rely on even more suppliers in the years to come.
- Concentration of produce buying continues to strengthen. More and more supermarket retailers are placing more and more of their produce business with their top 10 suppliers.
- The "opportunity" or "spot" buy is on the decline.
- Despite a small contingent of firms that do not use contracts for produce, the majority of firms do use contracts and are using them for greater percentages of their produce purchases than ever before.
- Performance guidelines are being adopted by increasing numbers of produce executives as an evaluation tool to measure grower/shippers performance.
- While all firms receive produce as either full, mixed, or direct delivered loads, produce executives continue to trend toward greater use of full loads.
- Still, the majority of communications between buyer and seller relies on the time-honored telephone. However, electronic technology is making its way into produce buying offices across the United States.
- Order cycle or lead time has been declining slightly over the past 5 years. However as produce executives look ahead they expect only minimal improvements over today's lead time for both everyday and promotional items (see Section 4 following).
- Transportation costs, on-time arrivals, and produce rejections are all improving. Furthermore, produce executives expect this trend to continue to improve as the supply chain becomes more efficient.

SECTION 4

Technology

Improved technology has had a major influence on all levels of the supply chain from buying and selling offices, to inventory and warehouse management. While just a few years ago EDI, VMI, B2B and CRP were unknown acronyms, today they are part of every buyer's and seller's working vocabulary. Admittedly, the adoption of new technology has been gradual, with some forms gaining early acceptance, while others like B2B (business-to-business) commerce are receiving a "wait and see" attitude among many buyers and sellers.

Since technology is such a fundamental component of supply-chain management and in particular, a key ingredient essential in creating new efficiencies within the supply chain, *FreshTrack 2001* participants were asked a series of questions to gauge their current and expected use of technology. Additionally, they offered their opinions on the advantages and disadvantage of one of the latest technological phenomena— B2B exchanges.

Use of the Internet

Produce retailers were asked to indicate how they currently use technology to facilitate produce buying. On average, 68.3 percent of respondents report using the Internet for email correspondence while about one-third of survey respondents use the Internet for each of the following: for a webpage, for B2B transactions, and as a platform for electronic data interchange (EDI) (Figure 4.1).

FreshTrack 2001 respondents representing large and small firms indicate different preferences for use of the Internet. While 54.2 percent of large firm buyers are using the Internet as a platform for EDI, only 11.8 percent of small firm buyers use the Internet in this way (Figure 4.1). Furthermore only 23.5 percent of small

FIGURE 4.1

Use of the Internet as a Platform for Select Applications by Size

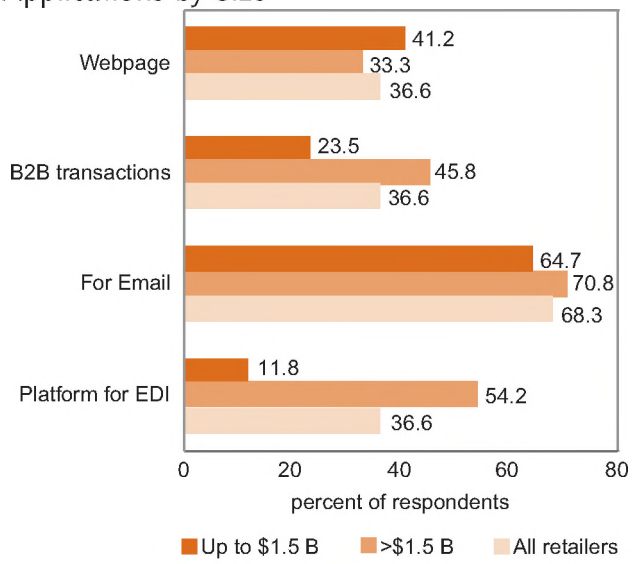


FIGURE 4.2

Use of Electronic Technology: All Retailers by Year(a)

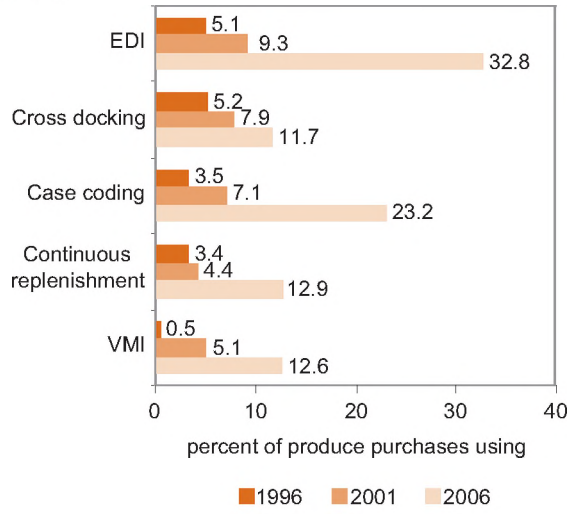
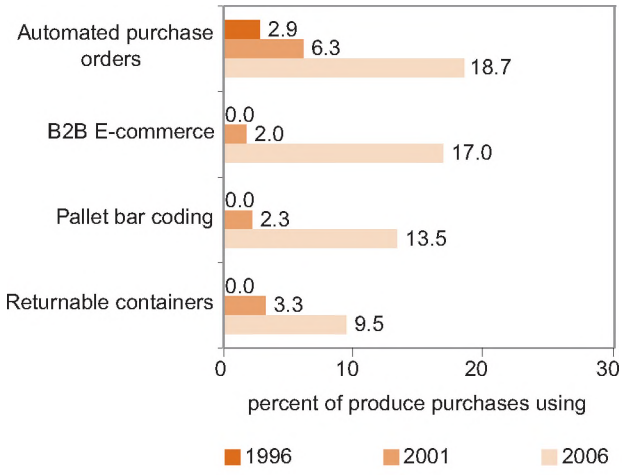


FIGURE 4.3

Use of Electronic Technology: All Retailers by Year(b)



firm buyers report utilizing the Internet for B2B exchanges, while this figure is twice the size for large firm buyers (Figure 4.1).

Use of Technology

Produce executives were asked to "estimate the percentage of your produce purchases that rely on the following initiatives…" These initiatives include nine separate technology-based applications that are mostly technology-based. Currently, on average, less than 10 percent of produce purchases rely on each of the following (Figures 4.2 and 4.3):

- EDI
- cross docking
- case coding
- continuous replenishment
- vendor-managed inventory (VMI)
- automated purchase orders
- B2B e-commerce
- pallet bar coding
- returnable containers

Comparing large and small firms, in the vast majority of cases large firm buyers are currently using these various forms of technology more than small firms and also expect to use them to facilitate more transactions in the future than small firm buyers predict in the future. In all cases EDI is utilized most often while case coding is also popular, particularly with large firm produce buyers (Figures 4.4 to 4.7).

While the next 5 years are projected by retailers to see a definite increase in the use of these technologies in produce buying offices, still, adoption rates for some are slow and perhaps even stalled (Figures 4.2 and 4.3). Looking ahead large firm buyers indicate generally greater use of technology throughout the supply chain.

The big winner appears to be B2B e-commerce, especially for large firms. While only 2.9 percent of purchases are currently transacted via B2B, by 2006 large firm executives expect a ten-fold increase, jumping to 21.5 percent of purchases expected to be transacted via a B2B transaction in 5 years (Figure 4.7).

FIGURE 4.4

Use of Electronic Technology: Retailers with Sales up to $1.5 Billion by Year(a)

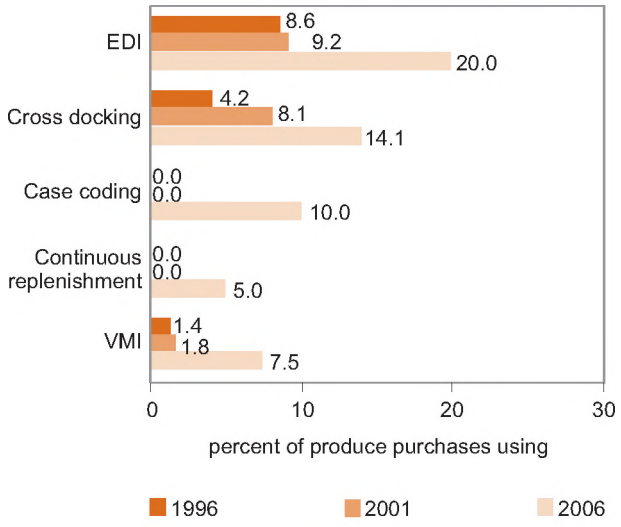


FIGURE 4.5

Use of Electronic Technology: Retailers with Sales up to $1.5 Billion by Year(b)

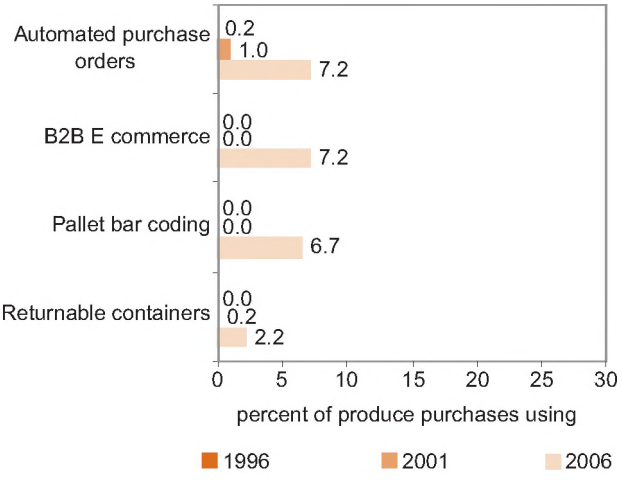


FIGURE 4.6

Use of Electronic Technology: Retailers with Sales over $1.5 Billion by Year(a)

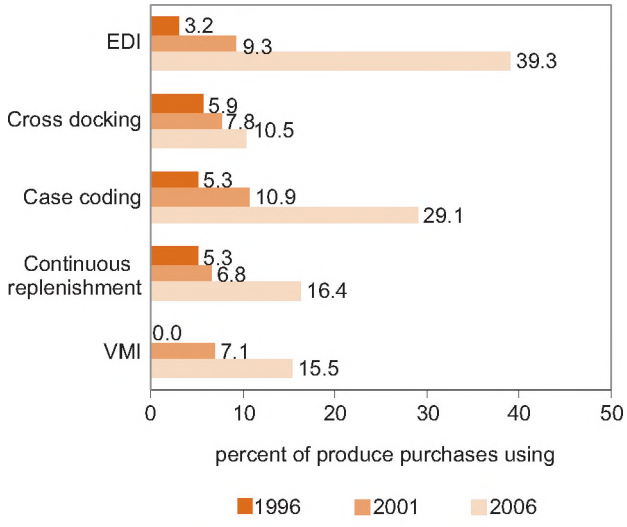
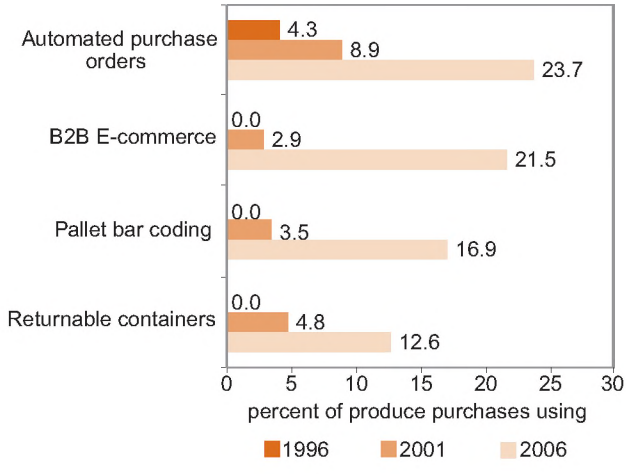


FIGURE 4.7

Use of Electronic Technology: Retailers with Sales over $1.5 Billion by Year(b)



Specific Uses of EDI

Produce executives from those firms using EDI were asked to indicate the various ways that EDI technology is used. Specifically, they were asked: "Please estimate the percentage of your produce purchases that rely on the following EDI transmissions in your company." The options from which they could choose included purchase orders, P.O. acknowledgments, forecasts, advanced ship notification, invoices and/or payments, and carrier shipment status.

On average, currently for those firms that reported using EDI, it is used most often to facilitate purchase orders (31.6% of purchases) while 20.1 percent of produce orders have EDI transmitted purchase order acknowledgments affixed to them (Figure 4.8). In general the use of EDI to facilitate each of the various functions listed has increased in the past 5 years but generally only displaying slight increases. However, in 5 years, a much different story might be told. If our industry forecast is correct, by 2006, almost half (43.3%) of produce purchases will have EDI transmitted purchase orders while over one third (35.8%) will have purchase order acknowledgements. Two other growth areas to watch over the next few years include using EDI for invoices and/or payments and as a means to track carrier shipments (Figure 4.8).

Once again, when comparing small and large firm practices regarding the use of technology, large firms tend to utilize EDI technology to a greater extent than small firm buyers. While they both use EDI to facilitate purchase orders about equally (31.7% for large firms vs. 31.5% for small firms) large firm buyers utilize EDI-facilitated technologies more than small firm buyers, with the exception of invoice and/or payments (Figures 4.9 and 4.10).

Looking ahead, small firm buyers are projected to make a dramatic move into the technological world by greatly increasing their use of EDI-facilitated technology. In fact, small firms buyers expect to be utilizing five of the six separate EDI-facilitated transactions to a greater extent than large firm buyers by 2006 (Figures 4.9 and 4.10).

FIGURE 4.8

Use of EDI Technology: All Retailers by Year

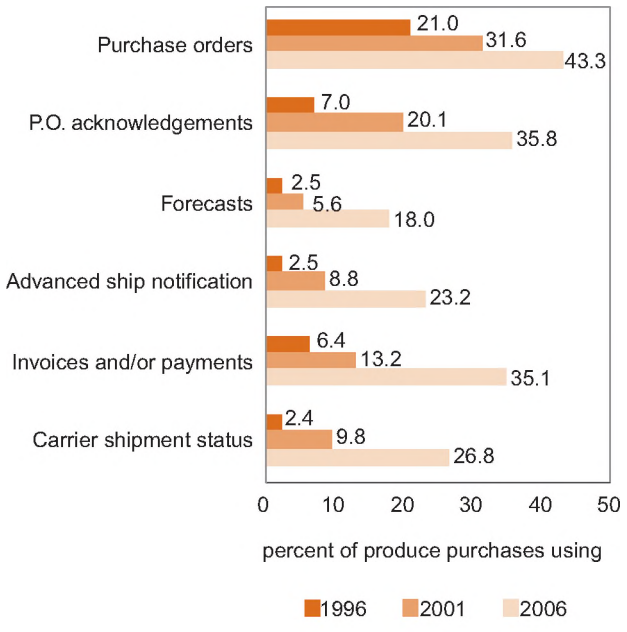


FIGURE 4.9

Use of EDI Technology: Retailers with Sales up to $1.5 Billion by Year

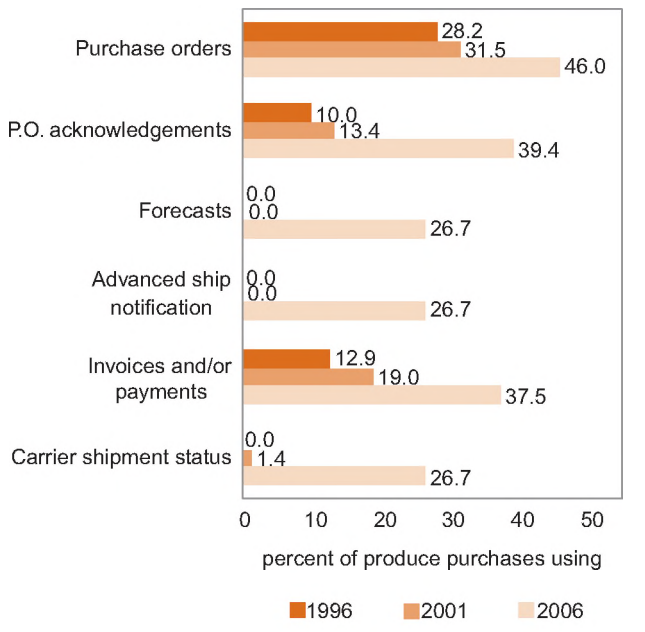
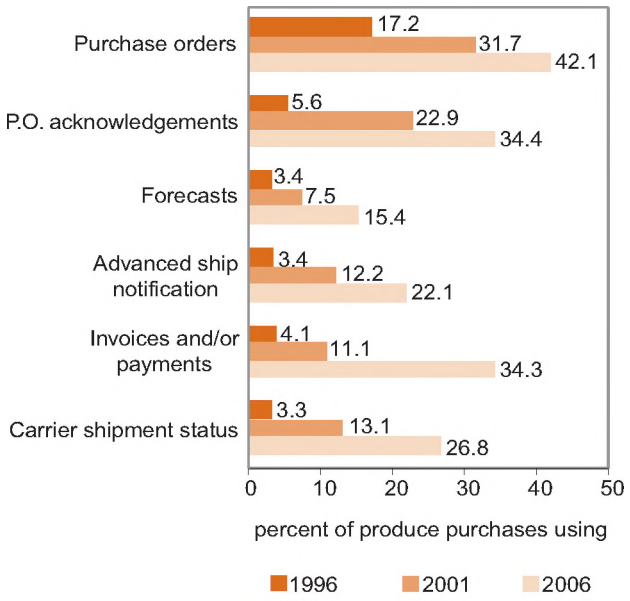


FIGURE 4.10

Use of EDI Technology: Retailers with Sales over $1.5 Billion by Year



Perceptions of B2B E-Commerce

Quite simply, the buzz word today around buying and selling offices and in every trade magazine is B2B E-commerce. Most participants in the produce industry are asking: "What are the benefits, what are the disadvantages?" Produce executives participating in *FreshTrack 2001* were asked to rate the importance of several issues related to the advantages and disadvantages of B2B. Using a scale from one to five where one equals "very unimportant," three equals "neutral," and five equals "very important," produce buyers evaluated and rated six perceived advantages and six perceived disadvantages of B2B E-commerce (Tables 4.1 and 4.2, respectively).

For the purposes of evaluating produce buyers' responses, each "issue" is reported here according to the percentage of produce executives who rated the issues either a "4" or "5." Furthermore, this rating will be labeled "very important." First, reviewing the perceived "benefits" of B2B, over three quarters (76.9%) of survey respondents assigned either a "4" or "5" to the advantage of "increased transaction accuracy" while a nearly equal percentage of buyers (69.3%) rated "lower transaction costs" and "greater transaction speed" as important or very important (Table 4.1). "Greater buying leverage" was given a score of either "4" or "5" by 59 percent of respondents while only 18 percent of buyers felt that "expanding the number of sellers" is either an important or very important advantage of B2B.

In three out of five cases, a higher percentage of large firm buyers felt more strongly about the importance of the following advantages than small firm buyers: "increased transaction accuracy," "lower transaction costs," and "greater transaction speed" (Table 4.1). Small firm buyers placed a slightly higher importance on the advantages of "expands the number of sellers," and "offers greater buying leverage" than large firm produce buyers (Table 4.1).

Table 4.1

Percentage of Retailers who Rated each Advantage Either as "Important" or "Very Important"

Advantage	All	Up to 1.5B	>1.5B
Increased transaction accuracy	76.9	91.6	53.3
Lower transaction costs	69.3	79.2	53.4
Expands number of sellers	18.0	16.1	20.0
Greater transaction speed	69.3	79.2	53.3
Greater buying leverage	59.0	58.3	60.0
Levels the playing field between large and small suppliers	48.7	60.0	41.6

Table 4.2

Percentage of Retailers who Rated each Disadvantage Either as "Important" or "Very Important"

Disadvantage	All	Up to 1.5B	>1.5B
Lack of personal touch	66.7	75.0	53.4
Possibility of technology failure	63.1	60.8	66.6
Lack of universal B2B format	56.4	58.3	53.4
Limited ability to differentiate product	58.9	62.5	53.3
Inability of immediate satisfaction for product problems	69.3	58.4	86.6
Limited ability to negotiate	74.4	70.8	80.0

To B—or Not 2-B?

After overcoming hurdles, both real and imagined, imposed by Y2K, the technology departments in many companies have spent much of the past 2 years evaluating the costs and benefits of business-to-business (B2B) E-commerce as one more way to eke out efficiencies in the marketing system.

In Theory...

Simply put, business-to-business E-commerce, or B2B, is a tool to be used by businesses for procurement and information-sharing activities. It is used to transmit information. Of course, computers from different companies have long been able to communicate without the intervention of the Internet; however, the Internet is the tool which has allowed a collective marketplace of companies, or multiple companies, to exchange information in concert and simultaneously. For example, the Internet can facilitate auctions where one company can offer a quote to multiple companies at the same time, or another company can send a request for a bid or for product to multiple companies.

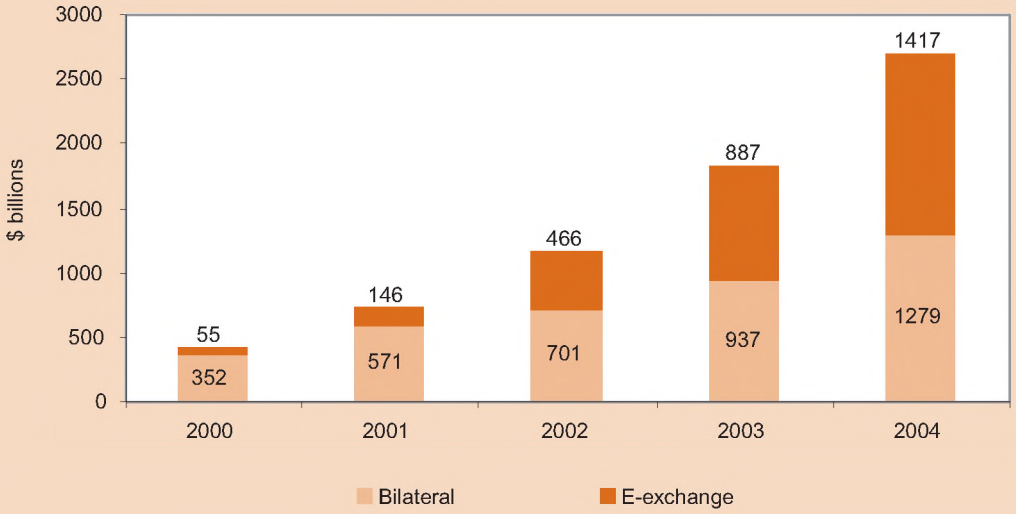
In general, B2B exchanges have developed websites, services, and software which allow buyers and sellers to procure or sell their merchandise across the Internet. Buyers and suppliers registered with the companies place their requests or quotes on the website in much the same manner as the more conventional telephone calls or faxes. Handling these procurement activities over the Internet has the potential to reduce errors in placing or receiving orders, eliminating paperwork, and reducing time spent on mundane or non-productive tasks. Potentially, it allows buyers and sellers to increase their reach and enhance their relationships.

Business Reality...

But what has happened over these ensuing 2 years? From perhaps 1,500 exchanges formed in the late 1990s, only the strong have survived. Among those survivors are WorldWide Retail Exchange (WWRE), GlobalNetXchange (GNX), and Transora, all of which trade in the food and consumer packaged goods arena. These three mighty exchanges overshadow many of the others in part because of the financial strength of their backers some of which include Kmart, Ahold, Best Buy (WWRE), Carrefour, Sears, Sainsbury (GNX), Unilever, P&G, and Nestlé (Transora).

continued *

B2B Online Trade[1]: E-Exchange vs. Bilateral[2], 2000-2004[3]



1 in billions
2 bilateral trade is defined as B2B e-commerce between pairs of direct trading partners; e-exchange (or e-marketing place) trade is e-commerce conducted through an online market
3 projected

Source: Marketing News, 2001.

The total number of actual B2B transactions in the food industry has been limited and has only been moderately successful when compared to the enormous potential projected. GNX, for example, has reported that it has facilitated approximately 12 million transactions through auctions amounting to $1.2 billion (Millstein, 2001). However, further information reveals that most of their current auctions involve private label products, not branded products. This is all well and good for those procurement channels involving pairs of direct trading partners, but what about the rest of the supplier-buyer activities?

Several factors appear to constrain the use of the B2B exchanges for procurement activities. One of the most important of these is the lack of one standard language which will allow the deep, rich descriptions needed to capture all the information usually exchanged over the telephone. Electronic Data Interchange, EDI, has standards which have been used in many industries over the past 20 years, including the grocery industry, and may be a candidate. However, EDI has not been embraced by many of the perishable industries because it is perceived to lack the depth and breadth of information needed by the perishable industries' categories. Another possible, and likely, candidate is eXtensible Markup Language (XML). While several major industries are working together to develop standards for using XML as the universal language, these are still not fully developed.

Other factors limiting the more widespread use of B2B exchanges include:

- Some participants reserve doubts about the integrity of the exchanges and the possibility of buyers and sellers issuing false bids and quotes in efforts to influence the market.

continued *

- The possibility of the system prematurely truncating discussions and negotiations and impacting retailer-vendor relationships.
- A belief that exchanges will enhance retailer power over vendors.
- The need for a universal language and an open marketplace may mean that adopters lose that competitive advantage in supply-chain management that B2B is suppose to allow (Hagen, 2001).

The competitive benefits of a technology which allows information to be passed up and down the supply chain freely and accurately have perhaps been best demonstrated by Wal-Mart. Wal-Mart, the world's largest retailer and recognized leader in retail and logistics innovations, has developed its own, private "B2B" system. This system provides vendors access to a wealth of information on product movement, pricing and transportation. This information is then used by vendors to automatically restock Wal-Mart's inventories, assisting with planning product demand. Discussions with produce suppliers have revealed an almost universal respect for Wal-Mart and appreciation of its commitment to information sharing.

What's Needed?

Produce Internet exchanges will need large numbers of buyers and sellers to survive, which means they will have to be able to convince both small and large suppliers of the benefits of moving to online exchanges. In addition, it is likely that they will need to expand the services they offer beyond the simple "auction" style of servicing buying and selling exchanges. Services to exchange most of the supply chain information such as tracking real-time transportation from sellers to buyers, real-time inventory, and collaborative planning, forecasting, and replenishment are necessary. However, enormous start-up costs and a slow down in investor funding have stricken many of these trading exchanges, leaving industries to wonder when and if the exchanges will be able to achieve the projected supply chain efficiencies. ◆

Shippers React: Accurate Transactions and Efficiencies Still Elusive

The vast majority of shippers across the country are not involved with B2B E-commerce. However, those shippers that are involved have often vocalized frustrations with trying to use B2B. For example, B2B for many grower/shippers represents "double the work." Purchase orders, POs, frequently don't match, and the service fees charged by the exchanges are not based on what is being shipped One shipper commented, "We have somebody working full time just justifying the bills. The POs are not matching what the exchange is billing us for. Their percent charge is not matching what we are shipping."

And the differences can represent a significant amount of volume. "We checked 20 to 30 POs on one page, and 80 percent of the POs didn't match up (to the invoices). And in one example, we had a 27,000 case differential in a mistake."

Many grower/shippers appear willing to use the exchanges, as long as they work. But consistent, differentiated codes and a standardized language are needed. Complicating the issue is the need for codes which accurately describe every product variable used by both suppliers and buyers. Many of these codes are not yet available. In one example, a retailer had different divisions taking different packs and different descriptions which had not been defined and included in the exchange's computers. As another example of the need for consistent, differentiated codes, one shipper commented: "Just in peaches we have 75 varieties, 6 packs, 8 sizes, and 40 growers. You start doing the permutations on that, and we faxed them (the exchange) 200 pages for them to develop the codes."

Despite the drawbacks, there are still shipper proponents, "Given all of this, I am still a believer that it is going to come, but it is several years away." ◆

Supply Chain of the Future: Scan-Based Trading in Produce?

Question: As companies look to improve the efficiency of supply-chain practices and become more customer responsive, how relevant will scan-based trading be compared to other technology-driven concepts currently in development?

Retailers and suppliers both are increasingly posing this question principally for dry grocery products. For now. But, like many other innovations that begin in dry goods, how long will it be before the produce industry is forced to confront this dramatically different payment scheme?

Scan-based training (SBT) has surfaced as a new way to organize procurement and distribution responsibilities in the supply chain. SBT uses point-of-sale data to enable retailers to carry out replenishment and payment with suppliers. The key change to current practice is in the ownership of goods. Unlike current practices whereby retailers normally assume ownership of items once delivered to the store (or warehouse), under SBT they remain the property of the supplier until they have been sold to the customer at the point of sale. In other words, instead of a two-stage transaction involving the goods being bought by the retailer from a supplier and then from the retailer by the consumer, there is a single point-of-sale operation after which the supplier is paid according to the volume sold. The replenishment process is accordingly modified from a fixed delivery schedule involving physical inventory checks and paperwork to a more flexible one determined by scanner sales data shared by retailer and supplier.

According to one study by PricewaterhouseCoopers, the SBT system can yield a major reduction in supply-chain costs and increase in operational flexibility. The benefits outlined in the PwC study are the following:

continued

Retailers	Suppliers
■ Smaller inventory	■ Smaller inventory
■ Fewer invoice disputes	■ Fewer disputes, quicker payment
■ Reduced transaction costs	
■ Better delivery scheduling	■ Reduced transaction costs
■ More targeted customer promotions	

Source: "Scan-Based Trading—Moving Toward a Demand-Driven Supply Chain, PricewaterhouseCoopers, February, 2001.

Of course, the technological investment required to modify the systems of suppliers and retailers would be enormous and would, in addition, require companies to be able to integrate their data network into store-level scanners. However, in grocery trials, companies have already successfully merged inventories and eliminated data duplication between certain retailers and suppliers. But such a system raises a number of practical questions for the produce industry:

- Who will be responsible for shrink and how will it be measured? Currently there are as many measures of retail produce shrink as there are numbers of retailers. Would retailers accept an industry-wide standard? Would suppliers accept some measure of "average shrink" subtracted from each invoice?
- Although the PwC study suggested faster payment to suppliers, is this likely in produce when deliveries and invoices now arrive, in some cases, several times each week?
- How would orders be adjusted for varying quality and seasonal differences in produce, especially when production areas are changing and during large promotions?

SBT will be one of the emerging technological possibilities tested by major food companies as they move toward B2B exchanges and trade. The produce industry will be well served to monitor these developments carefully. ◆

Retail produce respondents were also asked to react to a series of potential disadvantages of B2B e-commerce. Using the same scale for disadvantages as advantages, in every case, between half and three-quarters of produce executives rated each disadvantage as either "important" or "very important" (Table 4.2). The greatest disadvantage perceived by produce retailers is "limited ability to negotiate," followed by "inability to obtain 'immediate' satisfaction for product problems." "Lack of personal touch" and "possibility of technology or system failure" were assigned similar ratings while produce executives gave the lowest "importance" rating to "lack of universal B2B format" and "limited ability to differentiate product" (Table 4.2). However, despite the lower "importance" ratings for these two disadvantages, it should be noted that still over 50 percent of survey participants rated these two issues either "important" or "very important" disadvantages of B2B.

When reviewing the disadvantages of B2B, large firm buyers feel more strongly about three of the five disadvantages than small firm buyers. Produce executives representing firms with annual sales greater than or equal to $1.5 billion rate the importance of the following disadvantages higher than small firm buyers: "possibility of technology or systems failure," "inability to obtain immediate satisfaction for product problems," and "limited ability to negotiate" (Table 4.2). On the other hand, small firm produce buyers feel much more strongly about the potential "lack of personal touch" and "limited inability to differentiate product" than large firm buyers (Table 4.2).

Technology

Summary and Perspectives

- The use of the Internet for a platform is growing for use as a webpage, B2B transactions, for email and as a platform for EDI. Email and EDI show the greatest potential over the next 5 years.
- Currently the use of electronic technology has had a relatively minor impact on the produce supply chain. Regardless of the application (eg. EDI, cross docking, case coding, VMI, etc.), currently less than 10 percent of produce purchases rely on each of these various forms of electronic technology. However, this is projected to change dramatically in 5 years as the use of technology is expected to double and triple in use.
- Within the context of the initiatives examined here, EDI is currently receiving the greatest use within the produce supply chain. However, many of the various specific applications of EDI are still in limited use (purchase orders, forecasts, invoice, and/or payments, etc.). In 5 years these applications are expected to be much more common within the produce supply chain.
- The use of B2B E-commerce to facilitate produce buying has many advantages and disadvantages. Produce executives feel the greatest advantages include: "increased transaction accuracy," "lower transaction costs," and "greater transaction speed." The most significant disadvantages of B2B include: "limited ability to negotiate" and "inability to obtain immediate satisfaction for product problems." ◆

SECTION 5

Systemwide Issues

Supply chain management, by virtue of the name, implies systemwide management issues that affect the entire supply chain. Today, more than ever before, the supply chain is an integrated series of functions shared by grower/shippers, various firms operating at the "middle" of the distribution system, and retailers. While in the past certain segments of the supply chain were "owned" by either the grower/shippers or the retailer, today, in the age of partnerships and more collaborative work environments between grower/shippers and retailers, this context is changing.

Since it would be remiss and one-sided to present a section on systemwide issues from just the retailer perspective, for this section of the *FreshTrack 2001* study, grower/shippers were also surveyed (using identical questions) to gauge their reactions and opinions on these systemwide issues.

Priority of Systemwide Issues

Retailers' Priorities

Today there are virtually dozens of issues that have implications across the supply chain. Retail produce executives participating in *FreshTrack 2001* were asked to prioritize sixteen issues prominent within the supply chain. These issues included:

- Food safety
- HACCP standards
- Produce traceability

- Quality specifications
- Cold chain maintenance
- Pallet bar coding
- Returnable containers
- Demand forecasting
- Flow through/cross dock in perishables
- Vendor partnerships
- E-commerce
- Category management
- Inventory turns
- Vendor managed inventory
- Decreased order time
- Maintenance of margins

Survey respondents were asked to rate each issue using a scale from one to five (where one equals "low priority," three equals "neutral," and five is equivalent to "high priority"). For the purposes of reporting survey results, responses which were rated either a "4" or "5" are reported together and called "high priority" and issues that were rated either a "1" or "2" are combined and called "low priority."

As produce executives thought back to 1996, they placed the highest priority at that time (at least 50 percent respondents rated an issue either "4" or "5") on five issues (Table 5.1):

- Maintenance of margins
- Inventory turns
- Quality specifications
- Cold chain maintenance
- Food safety

On the other hand, eight issues received a "low priority" rating (at least 50 percent of respondents rated an issues either "1" or "2") (Table 5.1).

- Returnable containers
- Vendor managed inventory
- E-commerce
- Pallet bar coding
- Category management
- Demand forecasting
- Flow through/cross docking
- Product traceability

Only one issue received a relatively "neutral" rating—"decreased order time." Forty-three percent of respondents assigned this issue a neutral rating (Table 5.1).

Today, the list of "high priorities" has grown while the list of "low priority" issues has dwindled. While all of the high priority issues that were listed in 1996 continue to appear as a high priority, several issues have been added and the order of importance has shifted. Eight issues are now assigned a "high priority" which include (Table 5.2):

Table 5.1

Systemwide Priorities, 1996: All Retailers

	Percent of respondents		
Issue	Low Priority	Neutral	High Priority
Maintenance of margins	10.8	5.4	83.8
Inventory turns	8.2	18.9	72.9
Quality specifications	7.9	26.3	65.8
Cold chain maintenance	21.6	18.9	59.5
Food safety	21.0	26.3	52.7
Vendor partnerships	35.2	18.9	45.9
HACCP standards	43.2	24.3	32.5
Product traceability	55.2	15.8	29.0
Demand forecasting	65.7	17.1	17.2
Flow through/cross dock	66.6	25.0	8.4
Category management	75.0	11.1	13.9
Decreased order time	29.7	43.3	27.0
Pallet bar coding	80.0	17.1	2.9
Returnable containers	94.4	5.6	0.0
E-commerce	88.9	8.3	2.8
Vendor managed inventory	88.9	8.3	2.8

- Food safety
- Quality specifications
- Cold chain maintenance
- Inventory turns
- Maintenance of margins
- HACCP standards
- Vendor partnerships
- Produce traceability

The current list of "low priorities" includes only three issues (Table 5.2):

- Returnable containers
- Pallet bar coding
- Vendor managed inventory

Although no issue was rated neutral, one issue, demand forecasting, received a higher "neutral" rating than it did "low" or "high" rating (Table 5.2).

Looking ahead to 2006 the pattern established for 2001 continues—more high priority issues and fewer low priority issues. By 2006 the list of high priorities is expected to have grown from eight issues to twelve while the list of low priority issues further declines from three issues to only one. The issues assigned the highest priorities include (Table 5.3):

- Food safety
- Quality specifications

Table 5.2

Systemwide Priorities, 2001: All Retailers

	Percent of respondents		
Issue	Low Priority	Neutral	High Priority
Maintenance of margins	2.4	7.3	90.3
Inventory turns	0.0	7.3	92.7
Quality specifications	0.0	0.0	100.0
Cold chain maintenance	0.0	2.4	97.6
Vendor partnerships	2.4	9.8	87.8
Food safety	0.0	0.0	100.0
HACCP standards	0.0	9.8	90.2
Product traceability	2.4	28.6	69.0
Demand forecasting	17.5	50.0	32.5
Flow through/cross dock	34.1	39.0	26.9
Category management	21.9	29.3	48.8
Decreased order time	12.2	39.0	48.8
Pallet bar coding	64.1	30.8	5.1
Returnable containers	75.0	17.5	7.5
E-commerce	46.4	39.0	14.6
Vendor managed inventory	58.6	24.4	17.0

Table 5.3

Systemwide Priorities, 2006: All Retailers

	Percent of respondents		
Issue	Low Priority	Neutral	High Priority
Maintenance of margins	2.5	5.0	92.5
Inventory turns	0.0	5.0	95.0
Quality specifications	0.0	0.0	100.0
Cold chain maintenance	0.0	0.0	100.0
Vendor partnerships	2.5	7.5	90.0
Food safety	0.0	0.0	100.0
HACCP standards	0.0	2.5	97.5
Product traceability	2.5	10.0	87.5
Demand forecasting	10.2	38.5	51.3
Flow through/cross dock	27.5	27.5	45.0
Category management	15.0	10.0	75.0
Decreased order time	12.5	27.5	60.0
Pallet bar coding	26.4	39.5	34.2
Returnable containers	51.3	28.2	20.5
E-commerce	12.5	35.0	52.5
Vendor managed inventory	35.0	22.5	42.5

- Cold chain maintenance
- HACCP
- Inventory turns
- Maintenance of margins
- Vendor partnerships
- Product traceability
- Category management
- E-commerce
- Demand forecasting

The only issue given a low priority was returnable containers (51.3%) (Table 5.3). Pallet bar coding received a higher "neutral" rating than it did "low" or "high" priority.

Grower/Shippers' Priorities

Grower/shippers were asked to respond to the same set of systemwide issues for 2001 and 2006 as were the retailers. Survey results for grower/shippers were calculated identically to those of retailers. That is, for each issue grower/shippers were asked to rate it using a scale from one to five where one equals "low priority," three equals "neutral," and five is equivalent to "high priority." For the purposes of reporting survey results, responses which were rated either a "4" or "5" will be reported together and called "high priority" and issues that were rated either a "1" or "2" will be combined and called "low priority."

For 2001, the issues receiving the highest grower/shippers priority rating (50% or more of grower/shippers rated the issues either a "4" or "5") included (Table 5.4):

- Food safety
- Maintenance of margins
- Product traceability
- Quality specifications
- Cold chain maintenance
- Vendor partnerships
- HACCP standards
- Inventory turns
- Decreased order time
- Demand forecasting
- Category management

While grower/shippers rate the issues above as having high priority, they tend to assign a fairly high "neutral" rating to the following issues: flow through/cross docking, pallet bar coding, and E-commerce (Table 5.4).

Table 5.4

Systemwide Priorities, 2001: Grower/Shippers

	Percent of respondents		
Issue	Low Priority	Neutral	High Priority
Maintenance of margins	0.0	9.1	90.9
Inventory turns	14.3	19.0	66.7
Quality specifications	4.5	9.1	86.4
Cold chain maintenance	4.6	22.7	72.7
Vendor partnerships	9.1	22.7	68.2
Food safety	0.0	9.1	90.9
HACCP standards	9.1	22.7	68.2
Product traceability	0.0	9.1	90.9
Demand forecasting	4.8	38.1	57.1
Flow through/cross dock	25.0	45.0	30.0
Category management	18.2	27.3	54.5
Decreased order time	4.8	28.6	66.6
Pallet bar coding	22.7	45.5	31.8
Returnable containers	22.7	36.4	40.9
E-commerce	27.3	45.5	27.3
Vendor managed inventory	18.2	36.4	45.5

Assuring Produce Safety: A Key Industry Strategy

Changing lifestyles and a growing interest for fresh, ready to eat, nutritious products among consumers has brought produce to the forefront of the U.S. food retail industry, with permanently increasing sales and profits. As a result, retailers are using the produce department as a way to differentiate from their competition, focusing significant efforts to increase the variety, quality, and availability of the products offered for sale. According to a recent study conducted by FMI, "95% of U.S. consumers surveyed are completely or mostly confident that the food in their supermarkets is safe." This result reflects the moral and social responsibilities implied for retailers in the U.S. food supply and highlights the importance for the whole supply chain of assuring that produce is safe and wholesome.

Along with the increasing consumption of fresh fruits and vegetables in the United States, scientists in the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, noticed that between 1973 and 1998 there was a steadily increasing trend in the number of foodborne outbreaks associated with fresh fruits and vegetables. Among the main products involved in such events during the past decade are sprouts, lettuce, cantaloupes, watermelons, tomatoes, strawberries, raspberries, scallions, basil, and parsley. The most commonly involved pathogens have been several strains of *Salmonella*, *E Coli* O157:H7, *Hepatitis A*, *Cyclospora cayetanensis*, *Shigella sonnei*, *Staphylococcus aureus*, *Campylobacter jejuni,* and *Clostridium botulinum*. The occurrence of foodborne illness outbreaks can mean irreparable damage to a company, both from the legal point of view as well as from the negative impact on its brand.

Currently, there are no mandatory rules for the safe growing and packing of fruits and vegetables, except for those regulating water and pesticide residues under the surveillance of EPA. In October 1998, FDA rolled out its *"Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables,"* comprising a set of Good Agricultural Practices (GAPs) which many in the produce industry are incorporating into their operations as quickly as possible, in an effort to preempt the possibility of stringent regulations by FDA. However, currently these practices are optional.

Keeping produce safe is no easy task. In the field, produce can be contaminated: through organisms present; the soil and water; by pests; or by improper pesticide use. During harvesting, the major risk of contamination comes from handling by workers who may be the carriers of pathogens. During packing of fresh produce, the risks lie with contaminated packaging equipment and supplies, while processing and packaging of pre-cut products involves several safety hazard points. Distribution of produce in trucks, which might be contaminated from previous cargoes due to lack of temperature controls in them, also represents a major threat to produce safety. At retail, storage of produce, handling by employees for display, as well as handling by consumers, all represent important risks of contamination. Finally, though not necessarily less important, mishandling of produce by consumers and the chances of cross contamination of the product at home are yet other hazards to the safety of produce and precut fruits and vegetables. It is clear, then, that there are specific responsibilities in keeping produce safe at each stage along the supply chain.

The confidence that consumers have in their supermarkets along with the new incidence of foodborne illnesses caused by tainted produce in the United States, may explain recent food safety requests from retailers. Some of the major supermarket chains, and foodservice operators as well, now require suppliers to not only follow the GAPs guidelines but also to obtain third-party audits as a prerequisite for doing business. These new demands have created a great deal of controversy in the industry. While some see third-party audits as a way to raise the quality and safety of produce and a training tool to build a food

continued *

safety program, others view them as an excessive and costly method, mainly geared to limit retailers' liability, but not necessarily resulting in increased safety. A major consideration of third-party audits is their cost. They range from tens of thousands to a few hundred thousand dollars, a cost exclusively absorbed by the growers. This can be difficult or even impossible for small growers to afford, eventually driving them out of the market.

Interestingly, some major supermarket organizations are looking at produce safety from a systemwide management approach, where all parties involved in the supply chain acknowledge their responsibilities. In this approach, knowing your business partners and the relationship you have with them become key. This approach to produce safety may prove particularly challenging under the present circumstances of consolidation where long-term vendor-buyer relationships have been eroding, and no clear future trend in this respect is yet defined. On the other hand, it may prove that concepts such as the "university" approach, discussed in *"A New Buyer-Seller Paradigm"* on page 20, presently being developed by some producers in California, could be a key mechanism in developing such collaboration throughout the produce supply chain.

As there is no single clear-cut solution to assuring produce safety thus far, it is evident that the industry needs to develop creative cost-efficient procedures with which it can address the hazards involved at the different stages along the distribution chain. Perhaps making use of innovative technologies, developing new schemes of collaboration among its members, and even providing information to consumers will bring about an industrywide proposition which will allow the industry to ensure the safety of its products while fulfilling the expectations of its customers, for high quality and good value. ◆

As grower/shippers look ahead to 2006 every issue is given a "high priority" rating by at least 50 percent of grower/shippers while no issues are assigned a relatively high "neutral" or "low priority" rating (Table 5.5).

Comparing Retailers' and Grower/Shippers' Responses

Currently, retailers and grower/shippers agree quite closely that each of the following issues are high priorities within the produce supply chain: food safety, maintenance of margins, and category management (Table 5.6). However, beyond these three issues, the opinions of grower/shippers and retailers appear to diverge. Retailers feel more strongly about quality

Table 5.5

Systemwide Priorities, 2006: Grower/Shippers

	Percent of respondents		
Issue	Low Priority	Neutral	High Priority
Maintenance of margins	4.5	4.5	91.0
Inventory turns	15.0	15.0	70.0
Quality specifications	0.0	4.5	95.5
Cold chain maintenance	4.5	18.2	77.2
Vendor partnerships	4.5	4.5	91.0
Food safety	0.0	9.1	90.9
HACCP standards	9.1	9.1	81.8
Product traceability	0.0	4.5	95.5
Demand forecasting	4.8	23.8	71.4
Flow through/cross dock	10.0	30.0	60.0
Category management	0.0	36.4	63.6
Decreased order time	14.3	23.8	61.9
Pallet bar coding	4.5	22.7	72.8
Returnable containers	14.3	33.3	52.3
E-commerce	4.5	9.1	86.4
Vendor managed inventory	0.0	13.6	86.4

Table 5.6

Systemwide High Priorities, 2001: Retailers vs. Grower/Shippers

	Percent of participants rating issue as high priority	
Issue	Retailer Response	Grower/Shipper Response
Food safety	100.0	90.9
Quality specifications	100.0	86.4
Cold chain maintenance	97.6	72.7
Inventory turns	92.7	66.7
Maintenance of margins	90.3	90.9
HACCP standards	90.2	68.2
Vendor partnerships	87.8	68.2
Product traceability	69.0	90.9
Decreased order time	48.8	66.6
Demand forecasting	32.5	57.1
Category management	48.8	54.5

specifications, cold chain maintenance, inventory turns, HACCP standards, and vendor partnerships than do grower/shippers, while grower/shippers feel stronger about product traceability than retailers (Table 5.6).

As grower/shippers and retailers look toward 2006 and evaluate these sets of issues, both issued similar responses or "priority ratings" to six issues: food safety, quality specifications, maintenance of margins, vendor partnerships, produce traceability, and decreased order time (Table 5.7). However, there is clearly a lack of consensus between grower/shippers and retailers as they consider the remainder of issues.

Retailers place higher priority than do grower/shippers on the following issues: cold chain maintenance, HACCP standards, inventory turns, and category management. In contrast, as grower/shippers look ahead and prioritize these issues, they place a higher priority on several different issues than do retailers. These include: E-commerce, demand forecasting, pallet bar coding, vendor managed inventory, returnable containers, and flow through/cross dock (Table 5.7).

Table 5.7

Systemwide High Priorities, 2006: Retailers vs. Grower/Shippers

	Percent of participants rating issue as high priority	
Issue	Retailer Response	Grower/Shipper Response
Food safety	100.0	90.9
Quality specifications	100.0	95.5
Cold chain maintenance	100.0	77.2
HACCP standards	97.5	81.8
Inventory turns	95.0	70.0
Maintenance of margins	92.5	91.0
Vendor partnerships	90.0	91.0
Product traceability	87.5	95.5
Category management	75.0	63.6
Decreased order time	60.0	61.9
E-commerce	52.5	86.4
Demand forecasting	51.3	71.4
Pallet bar coding	34.2	72.8
Vendor managed inventory	42.5	86.4
Returnable containers	20.5	52.3
Flow through/cross dock	45.0	60.0

Systemwide Responsibilities

Retailers' Perspective

Many stake holders in the produce industry today are asking the question: "Are more responsibilities

shifting upstream from retailer to grower/shippers?" and if so what are those responsibilities and who is responsible for them? To learn more about the answers to these questions, retail produce executives were asked the following: "Who in the produce distribution system do you believe has the major responsibility for each service below?" For each of the three points in time (1996, 2001, and 2006) survey respondents offered their opinion on whether a particular responsibility lay with retailers, grower/shippers, or was a shared responsibility. The issues evaluated include:

- Demand forecasting
- Private label
- Package innovation
- Market research
- Promotion support/planning
- Category management
- Productivity analysis
- Cross docking
- Shipment consolidation
- Inventory management

Produce retailers considered the allocation of responsibility in 1996 for each of these tasks. *FreshTrack 2001* respondents, on average, accepted retailer responsibility for the following: demand forecasting, private label, category management, productivity analysis, and inventory management. For example, while 57.1 percent of retailers accept responsibility for demand forecasting in 1996, only 34.3 percent feel it should have been shared. And only 8.6 percent feel it should have been grower/shippers' responsibilities. Retailers believe that package innovation, and shipment consolidation lie primarily within the domain of grower/shippers while market research, promotion support/planning, and cross docking are perceived as a "shared" responsibility (Table 5.8).

Currently, retailers believe that the primary responsibility for several of these tasks has shifted. Where once many of these tasks were the primary responsibility of the retailer, today retailers perceive these

Table 5.8

Systemwide Responsibilities: All Retailers

	Percent of respondents								
	1996			2001			2006		
Responsibility	retailer	shared	g/s	retailer	shared	g/s	retailer	shared	g/s
Demand forecasting	57.1	34.3	8.6	36.8	55.3	7.9	18.9	73.0	8.1
Private label	62.9	25.7	11.4	52.5	32.5	15.0	46.2	41.0	12.8
Package innovation	13.5	24.3	62.2	10.0	47.5	42.5	7.7	56.4	35.9
Market research	21.6	37.8	40.5	0.0	67.5	32.5	0.0	69.2	30.8
Promotion support/planning	27.0	54.1	18.9	0.0	87.5	12.5	0.0	87.2	12.8
Category management	58.3	27.8	13.9	23.1	74.4	2.6	15.8	78.9	5.3
Productivity analysis	75.0	16.7	8.3	53.8	35.9	10.3	37.8	51.4	10.8
Cross docking	42.9	45.7	11.4	23.1	64.1	12.8	18.9	64.9	16.2
Shipment consolidation	13.9	38.9	47.2	2.6	61.5	35.9	2.7	56.8	40.5
Inventory management	75.0	19.4	5.6	46.2	48.7	5.1	34.2	57.9	7.9

tasks as shared responsibilities. The tasks that are shifting toward a shared status and, as a result, involve more grower/shippers involvement than in the past, now include: demand forecasting, promotion support/planning, category management, productivity analysis, cross docking, shipment consolidation, and inventory management (Table 5.8). Package innovation and market research are the only two tasks where retailers expect grower/shippers to relinquish some portion of their former roles and subsequently share more of the function with their retail accounts. The two functions that retailers believe still remain with themselves are private label and productivity analysis.

As produce executives project 5 years into the future, this trend persists—more responsibility being shifted to grower/shippers as a "shared" responsibility and less exclusive retailer ownership of each task. With the single exception of private label, the greatest number of respondents indicated that they expect the major responsibility for each task to be a shared one between grower/shippers and retail organizations.

Grower/Shippers' Perspective

Grower/shippers were asked the identical question regarding systemwide responsibility as were produce retail executives. Table 5.9 compares their responses for 2001. With the exception of private label, their responses differed from those of their retail counterparts. Below is a brief summary of their responses regarding the responsibility for these systemwide issues:

- Demand forecasting: while grower/shippers clearly believe this should be a shared responsibility, retailers are divided, with over one-third believing it is a retailer responsibility and over half suggesting it is a shared responsibility
- Private label: general agreement between grower/shippers and retailers about where the responsibility should lie
- Package innovation: This is generally viewed as either a shared or grower/shippers' responsibility. Grower/shippers feel more strongly that it should be a shared responsibility than do retailers

Table 5.9

Systemwide Responsibilities, 2001: Retailers vs. Grower/Shippers

Percent of retailers and grower/shippers responding

	Retailer Responsibility		Shared Responsibility		Grower/Shippers Responsibility	
Task	**Retailer Response**	**Grower/Shippers Response**	**Retailer Response**	**Grower/Shippers Response**	**Retailer Response**	**Grower/Shippers Response**
Demand forecasting	36.8	19.0	55.3	81.0	7.9	0.0
Private label	52.5	59.1	32.5	27.3	15.0	13.6
Package innovation	10.0	9.5	47.5	57.1	42.5	33.3
Market research	0.0	22.7	67.5	54.5	32.5	22.7
Promotion support/planning	0.0	22.7	87.5	77.3	12.5	0.0
Category management	23.1	27.3	74.4	54.5	2.6	18.2
Productivity analysis	53.8	31.8	35.9	45.5	10.3	22.7
Cross docking	23.1	22.7	64.1	50.0	12.8	27.3
Shipment consolidation	2.6	13.6	61.5	45.5	35.9	40.9
Inventory management	46.2	27.3	48.7	59.1	5.1	13.6

- Market research: Majorities of both retailers and grower/shippers believe that market research should be a shared activity; however, almost one-third of retailers and close to one-quarter of grower/shippers feel this activity should be carried out by grower/shippers
- Promotion support/planning: The vast majority of retailers and grower/shippers agree that this should be a shared activity
- Category management: While roughly one-quarter of retailers and grower/shippers feel this should be a retail activity, a very large majority feel that category management is a shared activity
- Productivity analysis: Retailers and grower/shippers have mixed feelings over how the responsibility for productivity analysis should be allocated. Retailers tend to favor themselves to oversee this function while grower/shippers view is more as a shared responsibility
- Cross docking: Two-thirds of retailers and one-half of grower/shippers consider this a shared activity
- Shipment consolidation: While the majority of retailers and nearly a majority of grower/shippers indicate this as a shared activity, there is still strong sentiment that this should be a grower/shippers activity
- Inventory management: Grower/shippers favor this as a shared activity while retailers are split between inventory management as their responsibility or as a shared responsibility with grower/shippers

The same scenario was put to the respondents for 2006 is: Whose responsibility are these functions? Generally, the trend is for a continued increase in the amount of sharing between produce retail executives and grower/shippers. Five responsibilities have been clearly labeled as shared activities. They include: demand forecasting, promotional support/planning, category management, cross docking, and market research (Table 5.10). Shipment consolidation is split between a shared and grower/shippers responsibility while private label and inventory management are split between shared and retailer responsibility. When retailers and grower/shippers considered package innovation and productivity analysis, there is indecision over where the primary responsibility should lie for executing these tasks (Table 5.10).

Impact of Consolidation

Retailers' Perspective

Retail produce executives were asked the following question: "Has retail consolidation changed the way you manage your supply chain?" On average, for all firms, 46 percent replied, "yes," consolidation has changed the way they manage their supply chain. The responses differ considerably when firm size is taken into consideration. Only 28 percent of small firm retail produce executives answered "yes" to this question while 61 percent of large firm executives answered "yes."

If a produce executive answered "yes" to this question, they were subsequently asked to provide examples of how consolidation has affected their business. The responses offered by survey respondents were varied and impact most areas of the supply chain. These included:

- three buying offices merging into one
- must rely on receiver/inspectors in other distribution centers without usually seeing the product
- increased vendor partnerships
- more emphasis on standards, less on price
- sold distribution center to a third party
- synergy contract buying
- logistical benefit of combined lots
- new suppliers
- stronger retail focus
- ship more product direct to stores

Table 5.10

Systemwide Responsibilities, 2006: Retailers vs.Grower/Shippers

	Percent of retailers and grower/shippers responding					
	Retailer Responsibility		Shared Responsibility		Grower/Shippers Responsibility	
Task	Retaile Response	Grower/Shippers Response	Retailer Response	Grower/Shippers Response	Retailer Response	Grower/Shippers Response
Demand forecasting	18.9	0.0	73.0	90.5	8.1	9.5
Private label	46.2	22.7	41.0	68.2	12.8	9.1
Package innovation	7.7	0.0	56.4	95.2	35.9	4.8
Market research	0.0	9.1	69.2	77.3	30.8	13.6
Promotion support/planning	0.0	0.0	87.2	95.5	2.8	4.5
Category management	15.8	9.1	78.9	72.7	5.3	18.2
Productivity analysis	37.8	18.2	51.4	54.5	10.8	27.3
Cross docking	18.9	9.1	64.9	72.7	16.2	18.2
Shipment consolidation	2.7	4.5	56.8	59.1	40.5	36.4
Inventory management	34.2	0.0	57.9	81.8	7.9	18.2

- direct link to other privately held retailers
- more straight loads
- slowed processing with consolidated companies
- major commodities are brought from a common negotiation
- more emphasis on forward planning
- more supply contracts

Grower-Shippers' Perspective

The vast majority, 82 percent, of grower/shippers believe that consolidation has impacted the way they do business. Grower/shippers offered many examples of how consolidation has changed their businesses:

- more harvesting and packing without purchase orders
- greater contract management
- more large accounts
- more grower/shippers' responsibility
- fewer customers
- bigger risk on inventories
- each retail account wants its own special package
- working more with the retail corporate office
- better partnerships
- vendor management inventory partnerships
- more E-commerce
- less retailer loyalty
- more price focus
- dedicated plantings
- increased produce offerings

Grower/Shippers' Consolidation: Although Incomplete Picture, Growing Evidence

- In the California tomato industry, the number of shippers has decreased from 48 in 1986 to 23 in 2000. In 1999 the top 4 shippers accounted for 43% of the volume and the top 8 shippers for 70%. California produces around 30% of the total U.S. tomato supply.
- In 2000, the top 5 handlers in the Florida tomato industry accounted for approximately 45% of the volume of fresh tomatoes, the top 10 for about 70%, and the top 20 for approximately 90%. Florida's tomato production supplies around 40% of the U.S. domestic production.
- Between the 1994/1995 season and the 1999/2000 season the top 4 grapefruit packinghouses in Florida went from accounting for 16% to 23% of the total volume, the top 10 from 34% to 44% and the top 20 from 58% to 69%. Florida's grapefruit production is approximately 80% of the total U.S. output.
- California's table grape industry, which accounts for 98% of the total U.S. production, went from 1,045 growers in 1985, to 729 in 1995, then to 600 in 2000.
- Orange growers in California have experienced a continual decline: from 7,452 in 1977, to 6,768 in 1987, then to 4,842 in 1997.
- In the lettuce/bagged salad industry, where California and Arizona together account for 94% of the U.S. total production, the number of processors decreased from 63 to 53 between 1994 and 1999, while the market share for the top 2 processors increased from 66% to 76%. During the same period, market share for the top 5 processors went from 88% to 91%, for private label processors from 2.4% to 9.7%, and for all other firms it decreased from 6.4% to 2.7%. ◆

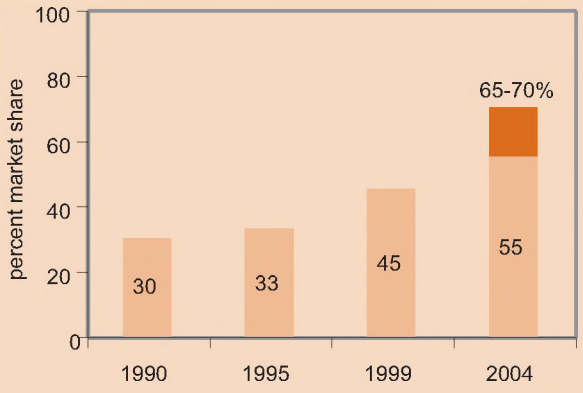
Source: Calvin and Cook, 2001

Suppliers' Consolidation in Response to Retailers' Consolidation

Although consolidation in the food retail business seems to have slowed in the last year, a recent study conducted by PricewaterhouseCoopers indicates this process will continue into the future. With a market share concentration of 45% in the hands of the top 10 supermarkets in 1999, projections for 2004 indicate a 55% to as much as 70% market share concentration for the top 10 in 2004 (see figure below). After almost 70 years of relatively consistent concentration figures for retailers, this represents a remarkable structural shift.

And while the pace of consolidation at the supermarket seems to have abated, the perception of greater retail level power has prompted a similar phenomenon at the grocery suppliers' end of the distribution channel. In 2000, mergers and acquisitions in the food processing and consumer packaged goods industry were among the hottest markets in the United States, led by Philip Morris Co.'s agreement to buy Nabisco Holdings Corp., for $18.9 billion and Unilever's acquisition of Bestfoods for $20.3 billion.

Projected Concentration of Market Share—Top 10 U.S. Supermarkets



Source: *Grocery Headquarters*, September 2000

continued *

Consolidation at the retail level is likewise putting pressure on produce suppliers to consolidate or form strategic alliances, as a mechanism to come closer to the scale of their new customers. Indeed, through the focus groups conducted for this *FreshTrack* study with growers and shippers in Florida, California, and New York, it became clear that most of their companies have already engaged or are presently considering engaging in such alliances. Beyond the desire of looking bigger in the eyes of their retail clients, objectives pursued by growers and shippers through these alliances include: the ability to supply more product on a year-round basis, joint purchasing opportunities, logistic advantages, better access to more advanced management information systems, technical support resources, and, last but not least, the ability to make the best use of their sales and marketing talents. And since grower/shippers in general have been reluctant to consolidate, due perhaps to the strong independent nature of family-owned businesses, it is anticipated that horizontal and vertical strategic alliances and joint ventures are more likely than outright ownership consolidation or vertical integration.[1] In fact, three recent examples from the citrus, grape, and berries' industries illustrate the directions these alliances are taking at the grower/shippers level.

In April 2000, the Dundee Citrus Growers Association and Haines City Citrus Growers Association, two of Florida's largest citrus marketing cooperatives, announced the formation of a full-service citrus sales and marketing organization. Dundee, founded in 1924, has 325 growers with a combined volume of 6.7 million boxes of oranges, grapefruit, and specialty citrus per year. The Haines city co-op, founded in 1909, has 174 growers with a combined volume of 2.8 million boxes. The deal combines the sales and marketing staffs from both operations. Representatives of the two co-ops indicate that the underlying reason for this merger is the consolidation in the retail industry and their need to better meet the demands of today's market. Through the combination of their resources, they will be able to have ample supplies from all growing regions and package nearly every variety of citrus grown in Florida in a season, with a packaging capability of over 50,000 cartons of fruit in a day.

Pacific Trellis Fruit LLC is a newly formed company based in Nogales (Arizona) resulting from the merger of the (now-defunct) Produce Kountry of Nogales and Bakersfield-based Andrew & Williamson Sales Company. The new company, which was formed in March 2001, sources product from California and Arizona for a yearly volume of 1 million cartons of grapes, along with approximately 2 million cartons of stone fruit. In order to provide its customers with a year-round table grape program, the new company sources about 2 million cartons of grapes from Chile and around 700.000 cartons from Mexico. As a result of this merger, too, Pacific Trellis LLC is now the owner of the cold storage operation in conjunction with several sizable San Joaquin Valley grape and tree fruit growers; several growers have signed multiyear marketing deals with it. According to Tim Dayka, president of the company, this move would increase four to five times the company's volume and probably place it among the top 10 tree fruit suppliers in the San Joaquin Valley.

The strategic alliance formed in 2000 by MBG Marketing, Grand Junction, Michigan, and Hortifrut S.A., Santiago (Chile), has resulted in the new berry-marketing, Florida-based venture called Global Berry Farms LLC. Global Berry now houses MBG and Hortifruit sales staff under the same roof. Hortifrut specializes in berries from Chile, Guatemala, and Mexico. MBG is a growers' cooperative representing the blueberry production from Florida to Michigan.

continued *

[1]Cook, Roberta, 2000

Combined sales for the two companies last year were $65 million. Part of the new company's goal and vision is to be a year-round, berry-marketing organization, not just of the fruit grown by the two companies, but also, to get involved in domestic production of blackberries, raspberries, and strawberries. Global Berry LLC marketed its first berries in November and in May this year established agreements with blueberry, blackberry, and raspberry growers in Oregon, Washington, and British Columbia; more agreements are under way, according to the new company. ◆

Systemwide Issues

Summary and Perspectives

- As retail produce executives consider the issues that are most important, the list evolves and intensifies over time. Table 5.11 lists these issues (in order of highest priority rating to lowest) for 1999, 2001, and 2006 that at least 50 percent of survey executives listed as a top priority.
- Over time, issues related to food safety (food safety, cold chain, HACCP, product traceability); increased profitability (maintenance of margins, inventory turns, order time); and quality all continue to gain importance in the minds of retail produce executives.
- Grower/shippers also prioritize these industrywide issues and, like produce retailers, they continue to place more importance on more issues over time. Like retailers, their major priority areas include food safety, profitability, and quality. Generally, grower/shippers feel more strongly about these individual issues particu-

Table 5.11

Top Priority Issues for Retail Produce Executives: 1996, 2001, 2006

	1996	2001	2006
Highest Priority	Maintenance of margins	Food safety	Food safety
	Inventory turns	Quality specifications	Quality specifications
	Quality specifications	Maintenance of margins	Cold chain maintenance
	Cold chain maintenance	Cold chain maintenance	HACCP standards
	Food safety	Inventory turns	Maintenance of margins
		HACCP standards	Inventory turns
		Vendor partnerships	Product traceability
		Product traceability	Vendor partnerships
			Category management
Lowest Priority			Decreased order time
			E-commerce

larly as they look toward 2006. Table 5.12 summarizes their top priority areas in order of importance.

- As expected, grower/shippers place a higher priority on issues over which they have greatest responsibility and control such as quality, safety, and product traceability.
- It is interesting to note the difference in number of issues considered high priorities by retailers and grower/shippers. Grower/shippers are more concerned about more issues than retailers.
- It appears that the responsibility for many functions within the supply chain are being shifted backward in the channel as retailers are asking grower/shippers to take on and/or share more tasks than ever before. This trend is projected to intensify by 2006.
- Grower/shippers and retailers agree that consolidation has, in many cases, changed the way they manage their supply chain.

Table 5.12

Top Priority Issues for Grower/Shippers: 2001 and 2006

	2001	2006
Highest		
Priority	Food safety	Product traceability
	Quality specifications	Quality specifications
	Maintenance of margins	Food safety
	Cold chain maintenance	Maintenance of margins
	Produce traceability	Vendor partnerships
	Vendor partnerships	Vendor managed inventory
	Inventory turns	E-commerce
	HACCP standards	HACCP standards
	Demand forecasting	Cold chain maintenance
	Category management	Pallet bar coding
		Demand forecasting
		Inventory turns
		Category management
		Decreased order time
Lowest Priority		Flow through/cross docking
		Returnable containers

SECTION 6

Summary and Strategic Perspectives

The objective of the *FreshTrack 2001* study was to document the current status of the produce industry's supply chain and to illustrate the changes that have occurred over the past 5 years. Furthermore, retail produce executives were asked to predict the ways in which they believe the produce supply chain will change in the next 5 years. Therefore, to accurately portray the produce supply chain, supermarket produce executives were asked to answer myriad questions related to supply chain management in the produce industry. These questions were divided into four general themes: Produce Department Profile, The Buying Process, Technology, and Systemwide Produce Industry Issues. For each theme, a summary of the findings of *FreshTrack 2001* will be presented here in this final section, along with strategic perspectives that will offer insights and proposed actions for all members of the produce industry to consider.

Finally, at the conclusion of this section a segment is included entitled "Grower/Shippers' Response to Systemwide Change." Grower/shippers are major stakeholders in the produce distribution system and, as such, are keenly interested in the directions and strategies being adopted at retail corporate headquarters. This section offers strategies that grower/shippers are currently adopting and will suggest tactics for grower/shippers to consider as they continue to reposition themselves in an effort to remain competitive in this dynamic world of fresh produce.

FreshTrack 2001: Retail Survey Results Summary

Produce Department Profile

- The produce department is a winner among supermarket departments. It continues to grow with new SKUs and additional space as profitability remains strong.
- Produce department growth, although still increasing in terms of SKUs and square feet, is growing at a slower rate than in previous years, a signal that the number of produce facings may be shrinking to accommodate new SKUs.
- As the number of produce SKUs continues to grow, the ratio between fresh and non-fresh items remains stable, despite the vigorous efforts of many suppliers of non-fresh produce items.

The Buying Process

- Initial fears suggesting that retail consolidation would result in fewer produce buyers appear to have come true. Today there are slightly fewer produce buyers than just 2 years ago.
- In the face of smaller and reconfigured buying offices, grower/shippers are finding it difficult to understand the "chain of command" and the "chain of decision making" within these consolidated companies.
- Although not surprising, the amount of produce procured directly from the grower/shippers continues to increase. Much of this direct buying is greatly facilitated by an increase in the number of field and regional produce buyers.
- In many ways today's supermarket retailers are attempting to operate the produce department using the same principles and procedures as in the dry grocery department. The growing use of performance guidelines, category management, and supply contracts are evidence of this. However, as a highly perishable biological product, produce does not conform to the same rigid and well-specified standards and operational procedures as, say, detergent or canned soup.
- It appears that as far as cycle or lead time is concerned, for both everyday and promotional items, produce buyers feel they have recently almost optimized the number of days required for adequate notification to grower/shippers. However, grower/shippers reported in focus groups that in many cases, produce buyers make major adjustments to their orders up to and including the day of proposed shipment from the production area, a practice which makes planning extremely challenging and often frustrating for grower/shippers.
- Concentration of supplier accounts within retail buying offices continues while the number of overall produce suppliers used by retail produce buyers continues to decline. This, along with the increased number of SKUs being offered on retail produce shelves, suggests considerable continued pressure for grower/shippers concentration into the future.
- Although still an industry where deals are consummated with a handshake, the use of formalized written contracts is increasing.
- Despite the rising costs of fuel, transportation costs as a percentage of system costs, have declined—perhaps an indication of an overall more efficient distribution system and fuller loads.

Technology

- Even though the use of various types of technologies is on the rise, the climb upwards is slow. The most common uses for the Internet are email, EDI, and webpages. Large companies, with annual sales in excess of $1.5 billion use the Internet far more for these functions than do their smaller firm counterparts.
- B2B, despite its popularity in the press, is still viewed with skepticism by produce industry operators. Currently, the use of B2B by retailers

is limited although produce executives project substantial growth in the future. Grower/shippers, on the other hand, are waiting for a universal standard to be developed before they immerse themselves in the B2B world.

- Large firm buyers felt the greatest advantages of B2B are: "increased transaction accuracy," "lower transaction costs," and "greater transaction speed." Small firm produce buyers felt the most important benefits include: "expands the number of sellers" and "offers greater buying leverage." It is interesting to note the different perceptions of B2B between large and small firm produce buyers. While large firm buyers are most interested in B2B enabling them to make the transaction process more efficient and cost effective, small firm buyers are interested in gaining more market power and influence with current or potential suppliers.
- Once again, large and small firm buyers disagree over the most important disadvantages associated with B2B. Small firm buyers most often cited "possibility of technology or systems failure," "inability to obtain immediate satisfaction for product problems," and "limited ability to negotiate," while large firm buyers felt the greatest disadvantage is "lack of personal touch."

Systemwide Produce Industry Issues

- The distribution system which supports the produce industry is in a state of gradual and continuous change. Today, retailers and grower/shippers alike believe there are more critical issues impacting the supply chain than in the past and believe this list will grow and that the issues will intensify in the future. At the root of these issues, especially, lie three underlying concerns for both grower/shippers and produce retailers: food safety, quality control, and profitability.
- Since each of these three issues impacts both the retail and supply side of the business, more partnerships are predicted to occur between produce buying teams and grower/shippers supplier teams. Whereas years ago this relationship would have been between one buyer and one seller, today teams from each company are being assembled in buying and selling offices who work in partnership to create mutually beneficial growth.
- As these partnerships begin to grow and become more mutually beneficial, shifts in responsibility for key tasks occur. As a result, grower/shippers are taking on the responsibility for more channel functions in an effort to continually "add value" to their retail partnerships.

Grower/Shippers' Responses to Systemwide Change

Supermarket retailers are not the only members of the supply chain who are experiencing rapid change. As supermarkets undergo a transformation in their business strategies, so must grower/shippers. For most grower/shippers, the combined sales of all of their retail accounts represent a significant percentage, often the majority, of their total annual sales. Although food service has shown steady growth and, in fact, has surpassed food stores in the value of total produce sold, grower/shippers cannot afford to ignore the forces changing the retail supermarket environment.

In response, the business of growing and shipping produce has changed. Today's generation of grower/shippers is operating a different business than did their parents just a generation ago. The following lists of grower/shippers' reactions has been developed based on the information gathered at the three focus groups conducted for this *FreshTrack 2001* study. The first list focuses on grower/shippers' observations about their businesses. The second list touches on success strategies grower/shippers have adopted or are considering implementing in the face of today's new business realities.

Grower/Shippers' Observations

- Today "just in time" inventory control for grower/shippers has evolved into "just in case" inventory management as retail produce buyers often make last-minute decisions about an order—placing, modifying, or canceling it at the "eleventh" hour.
- There appears to be a divergence in cycle or lead times: both shorter and longer. At one end of the spectrum, grower/shippers are confronted with last-minute order changes (see above) —while for promotional items, notification of an intended promotion from retail produce buyer to the grower/shippers selling office can be made up to 6 weeks in advance!
- In the past, grower/shippers were commonly asked the following question regarding packaging by retail produce buyers: "How do you pack…..?" Today, the question has changed. Now produce buyers ask: "Can you pack it in this way…my way?" The grower/shippers' answer: typically, "yes." They will often custom pack and even custom harvest a product to a retailer's specifications.
- The push for formal contracts has grown at both ends of the distribution channel: grower/shippers and retailers. The desire to have at least a minimum amount of product under contract is viewed as an essential risk management tool.
- Technology is received with mixed emotions. While information can now travel faster than ever before, one response from a grower/shipper in a rural area lamented their "second day email." Currently, technology in the selling office is used for order fulfillment, internal communications, and email; however, until standard formats are developed suppliers are taking a "wait and see" attitude. After all, as one response from grower/shippers said: "How many transactional platforms are we willing to build?"
- Most grower/shippers agree that retail consolidation has impacted their business. One concern and question echoed throughout the sales offices of many grower/shippers is: "Where are the decisions made in these new consolidated supermarket companies?"
- However, all grower/shippers agree that despite the "unknowns" surrounding the total impact of consolidation on grower/shippers and the frustration of "not knowing where the decisions are made," relationships are still at the heart of the produce industry. Moreover, the approach to building these relationships is more targeted today than in the past.
- Grower/shippers clearly feel that more of the responsibilities for the total transaction between themselves and produce buyers are being pushed "upstream" to them. Although retailers agree, their perception of the upstream "push" is in conflict with grower/shippers. Both parties agree on the direction of change but they disagree on the magnitude. Grower/shippers believe far more work and responsibilities are being shifted to them than retailers do.

Grower/Shippers' Business Strategies

- Grower/shippers are increasingly segmenting their customer base. They are building "tiers" of customers who together purchase their total output.
- Many grower/shippers are trying to work more closely with retailers particularly in planning and budgeting for mutual growth of the business.
- Today, grower/shippers are acting more and more as brokers (or consolidators) for their customers, putting together a variety of products from a variety of growers in order to provide both one-stop shopping and efficiencies in transportation.
- In response to growing consumer and retail concern over food safety, documentation of HACCP programs, third-party certification, inspections, and trace-back programs are all being integrated into grower/shippers' businesses. In fact some suppliers have created new

departments devoted solely to ensuring food safety.

- According to several grower/shippers one particular success strategy is to "be proactive and anticipate what your retail accounts may want." Three examples illustrate this approach:
  - When product is expected to be below normal quality expectations, one grower/shipper will routinely call retail customers to alert them and explain the situation. Bottom line: avoid surprises.
  - Another grower/shipper is concerned that within rapidly changing retail produce buying offices, buyers are often at the beginning of their "learning curve" regarding produce buying. In response, this grower/shipper believes it is important to "spend a lot of time educating buyers to try to help keep the relationship strong."
  - Continuing on a similar theme, one approach to providing information and education about the growing/shipping/packing business is through "university" programs where retailers are invited to visit and learn about the grower/shipper business.

None of these strategies, taken alone, represents radical new thinking, but they do reinforce the continued importance of fundamental marketing and the basics of customer orientation.

Finally, the sentiment shared by all grower/shippers and a strategy that guides most of their business decisions and strategies is simple. As one grower/shippers put it: "We need to stay flexible and responsive to retailer needs."

APPENDIX A

Imports of Fruits and Vegetables in the U.S. Market

As consumers' interest in healthier lifestyles has increased in the United States and consumption of products such as red meats and fatty foods has been on the decline over the past 20 years, consumption of fresh fruits increased 30.7 percent, and fresh vegetables 32.7 percent.[1] Imports of fresh and frozen fruits and vegetables have contributed to changing the demand patterns in the U.S. market. Availability of off-season products, along with the introduction of new products, previously unknown in the United States, allows consumers a wider choice all year round. Substitution of imported grapes and pears for seasonal products such as oranges and grapefruit in the winter, and of tropical and exotic newer products for staple products, is on the rise. The dynamic and increasingly diversified U.S. market for fruits and vegetables represents key opportunities for exporters of fruits and vegetables from around the world. At the same time, this shift represents both opportunities and challenges for retailers, shippers, and growers in the United States.

Imports of fresh and frozen fruits into the United States in 2000 were 7.3 million metric tons, worth $3.2 billion, of which bananas and plantains accounted for 58.5 percent of the quantity and 35.7 percent of the value. During the last five years, fresh fruits have, on average, accounted for 98.5 percent of the volume and 97 percent of the value of these imports. Among imported frozen fruits strawberries, raspberries, and blueberries represent, on average, 67 percent of both the volume and the value. U.S. imports of fresh and frozen vegetables for 2000 were 3.8 million metric tons and valued at US$ 2.8 billion. Fresh vegetables have accounted for 85 percent of both the volume and the value of these imports during the last 5 years. Potatoes and broccoli, together, represented 74 percent of the volume and 68 percent of the value of frozen vegetables' imports during this period.

As illustrated in Table 1, imports of these products have increased significantly between 1990 and 2000, with an annual growth rate of 7.8 percent for fruits (excluding bananas and plantains) and 8.1 percent for vegetables (excluding fresh and frozen potatoes). The products driving imports' growth during this period are melons, citrus, mangoes, pineapples and "other fruits" (mainly tropical and exotics) among fruits; and tomatoes, "other vegetables" (mainly specialties), cucumbers, onions, squash, and broccoli and cauliflower (these two imported mainly as frozen products) among vegetables.

[1]Corresponds to comparison of the periods 1977–1979 and 1997–1999.

Table 1

Fresh and Frozen Fruits and Vegetables—Imported Volume for 2000 and Annual Growth Rates for the Period 1990–2000

Fresh and Frozen Fruits			Fresh and Frozen Vegetables		
Product	**Volume 2000**	**Annual growth rate 1990–2000**	**Product**	**Volume 2000**	**Annual growth rate 1990–2000**
	(MTx000)	*(%)*		*(MTx000)*	*(%)*
Apple	164	4.6	Asparagus	75	11.9
Avocado	79	17.0	Beans	40	8.7
Berries & Strawberries	152	5.9	Cabbage	41	5.6
Citrus	362	11.5	Carrots	80	4.8
Grapes	470	2.5	Broccoli & Cauliflower	245	4.6
Kiwi	52	6.6	Celery	29	9.4
Mango	240	13.5	Cucumbers	346	7.6
Peaches	44	-2.1	Eggplant	39	9.2
Pears	94	6.9	Endive	2	-1.4
Pineapples	323	10.8	Garlic	29	5.2
Melons	895	8.7	Lettuce	29	9.3
Other fruits	165	12.2	Okra	24	3.0
Total*	**3,040**	**7.8**	Onions	214	3.0
Bananas & Plantains	4,288	2.7	Peas	40	1.5
Total	**7,328**	**4.5**	Peppers & Pimentos	27	7.8
			Radishes	16	2.8
			Squash	152	8.0
			Tomatoes	730	11.4
			Other Vegetables	716	10.8
			Total**	**2,874**	**8.1**
			Potatoes	888	11.4
			Total	**3,762**	**8.8**

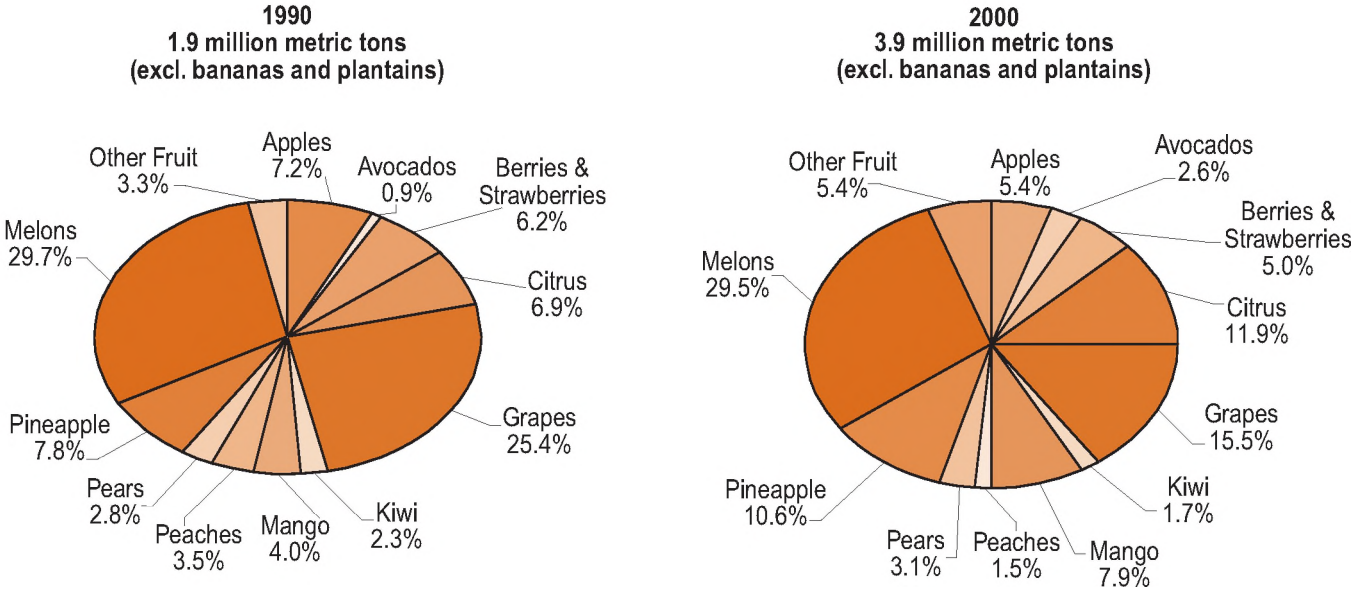
* Excluding bananas and plantains

**Excluding fresh and frozen potatoes

Source: Imports data: USDA-FATUS. *Calculations*: FIMP.

Figure 1

Percent of Fresh and Frozen Fruit Imports in 1990 and 2000



Source: Data – USDA-FATUS. *Calculations*: Cornell - FIMP

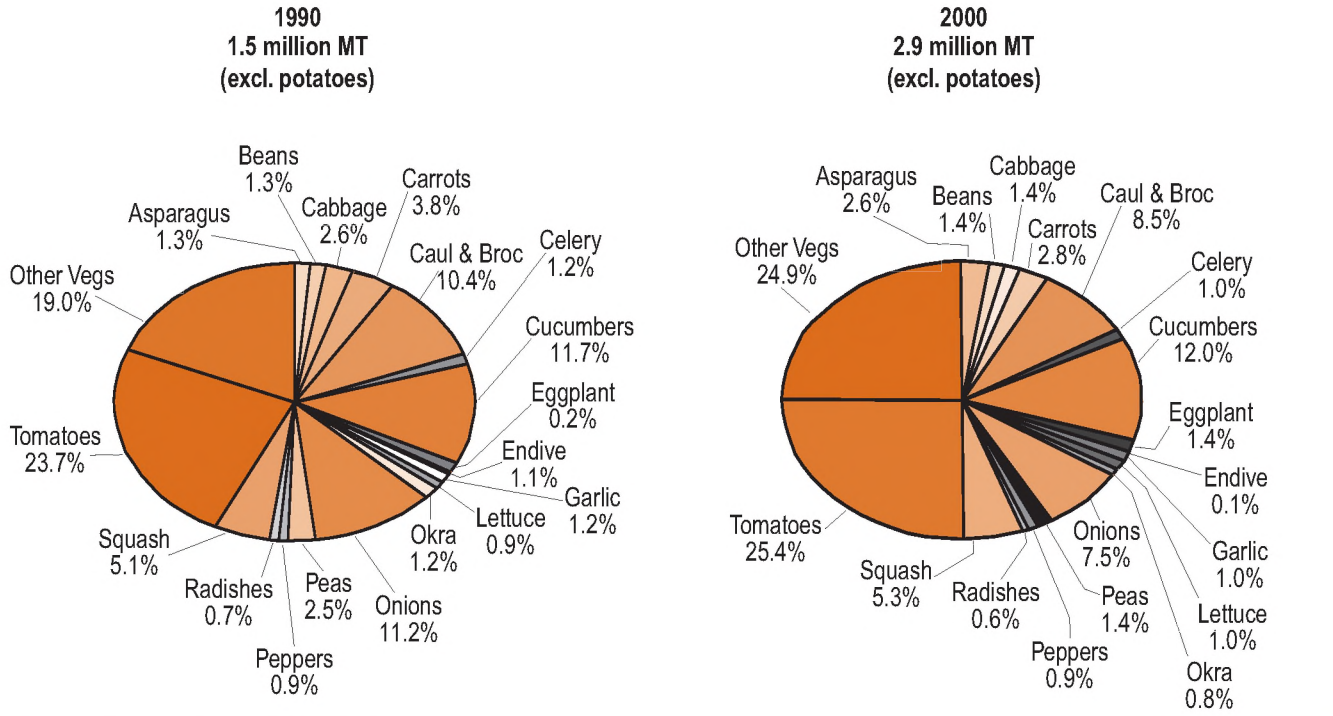
Between 1990 and 2000 share of total fresh and frozen fruit imports (excluding bananas and plantains) increased for avocados, citrus, mangoes, pineapples, and "other fruits," indicating that their imports grew at a faster rate than the imports of the whole fresh and frozen fruits category during this period (Figure 1). The increasing share of imports for products not grown in the United States, such as mangoes, pineapples and "other fruits" directly reflects consumption trends in the U.S. market and consumers' increasing interest in these products. The introduction of the new Gold Del Monte variety of pineapple and of new citrus products, such as clementines, boosted imports of these two products into the U.S. market. Melons, mainly imported off-season, maintained their share of imports during the period as consumption in the United States increased significantly, while share for the rest of the products decreased between 1990 and 2000, even though their imported volumes showed sustained growth (except for peaches) as indicated in Table 1.

Share of imports between 1990 and 2000 in the fresh and frozen vegetables' category (excluding potatoes) increased for tomatoes, asparagus, and "other vegetables" (Figure 2). The introduction of new products to the tomato market, such as greenhouse tomatoes, vine-ripe tomatoes, and several smaller sized varieties (such as grape and yellow tomatoes) have diversified the market and generated an increase in demand, which is being increasingly supplied with imports. The products grouped under "other vegetables" include the specialty vegetables and the roots and tubers demanded by the Hispanic and Asian populations and indicate attempts to better service these growing segments in the market—as these products are not grown at all or not in significant volumes in the United States. Share of imports for the rest of the products decreased between 1990 and 2000, in spite of their growing import volumes during that period (except for endive) as illustrated in Table 1.

When examining the role that imports of fruits and

Figure 2

Percent of Fresh and Frozen Vegetable Imports in 1990 and 2000



Source: Data – FATUS. *Calculations*: Cornell - FIMP

vegetables play in supplying the U.S. market, data on import's share of consumption are key. According to USDA-ERS,[2] except for products not normally grown domestically, the proportion in which imports satisfy domestic demand over the long run reflects supply factors as well as relative consumer demand for imported and domestically produced products.

Import's share of consumption, defined as the portion of food consumed domestically that is imported from foreign countries, has been increasing significantly for fruits and vegetables over the last years. While the average import share of overall U.S. food consumption remains below 10 percent, that for fresh and frozen fruits has increased from 5.5 percent to 22.4 percent between 1980 and 1999 and from 4.6 percent to 11.1 percent for fresh and frozen vegetables during the same period. Increase in import share of consumption has been particularly significant for non-citrus fruits, particularly grapes and melons and for bell and chili peppers, potatoes and tomatoes (Table 2).

Major origins for imported fresh and frozen fruits into the U.S. market are Mexico, Chile, Costa Rica, Guatemala, Honduras, and Canada. Imports from Mexico and Costa Rica during this period were particularly significant, given both their imports' volume in 2000 and their annual growth rates between 1990 and 2000. Other countries of origin with comparatively smaller volumes but with a very aggressive performance during this period (reflected in double-digit growth rates) are Peru, China, Spain, Australia, Brazil, Ecuador, and Argentina (Table 3).

[2]USDA-ERS. *U.S. Agricultural Trade Update*. June 27, 2001.

Table 2

Imports' Share of U.S. Produce Consumption

	1980	1985	1990	1995	1996	1997	1998	1999
Fruits, fresh and frozen	5.5	9.1	13.7	15.7	17.4	18.5	19.4	22.4
Citrus	0.5	0.8	1.0	1.8	1.8	2.1	2.2	3.0
Non-citrus	6.9	11.0	16.4	18.4	20.8	22.1	23.2	24.2
Grapes	11.3	29.6	40.5	40.6	38.8	42.2	41.2	43.7
Melons	10.3	9.8	15.7	17.8	19.1	23.3	24.5	24.5
Vegetables, fresh and frozen	4.6	6.0	7.2	9.0	10.2	10.1	11.7	11.1
Bell and chili peppers	26.5	26.5	26.8	30.9	32.0	36.5	41.1	41.0
Potatoes	1.3	3.3	7.0	7.9	10.7	11.2	14.9	14.5
Tomatoes	22.3	24.0	20.5	30.5	34.6	35.8	38.6	33.7

Source: USDA-ERS. *US Agricultural Trade Update*. June 27, 2001

Table 3

Origins of Imported Fresh and Frozen Fruits and Vegetables to the U.S. Market

	Fresh and Frozen Fruits*			Fresh and Frozen Vegetables**	
Country	**Volume 2000**	**Annual growth rate 1990–2000**	**Country**	**Volume 2000**	**Annual growth rate 1990–2000**
	(MTx000)			*(MTx000)*	
		Major sources			
Mexico	1,060	9.2	Mexico	2,075	11.4
Chile	593	1.8	Canada	1,295	7.7
Costa Rica	425	15.5			
Guatemala	196	17.3			
Honduras	133	7.4			
Canada	111	2.0			
		Smaller but very dynamic sources			
Peru	13	68.8	Spain	13	41.2
China	6	46.8	Peru	54	33.2
Spain	94	25.5	Netherlands	52	17.5
Australia	27	25.9	Israel	10	11.4
Brazil	23	21.1			
Ecuador	29	20.5			
Argentina	62	12.3			

*Excluding bananas and plantains

**Including fresh and frozen potatoes

Origins of imported fresh and frozen vegetables are more concentrated than for fruits, with 55 percent of the volume in 2000 coming from Mexico and 34 percent from Canada (of which 68% correspond to fresh and frozen potatoes). Annual growth rates for imports from both of these sources between 1990 and 2000 were significant, particularly for Mexico (11.4%). During the same period, imports from Spain, Peru, the Netherlands, and Israel were comparatively smaller in volume but much more dynamic than imports from Mexico and Canada (Table 3).

Imports of fruits and vegetables into the United States provide retailers with the possibility of a year-round supply of seasonal commodities and of diversifying and innovating the produce department, with tropical and exotic produce. At the same time they are faced with the challenges of ensuring permanent availability of safe produce to deliver on consumers expectations. Benefits for shippers rely mainly in them being able to look for competitively priced sources of produce as well as providing a more diversified market basket to their customers on a year-round basis. Challenges faced by shippers include assuring sufficient volumes of safe products delivered on time. Growers, on the other hand, have benefited from increased consumption derived from year-round availability (melons for example). At the same time, they are faced with the challenges of greater competition, both from the same commodities coming from foreign countries as well as from other products that may be substituted for their products, by consumers.

And while retailers, growers, and shippers in the United States take advantage of the opportunities and face the challenges of imported products, producers and exporters in foreign countries continue making efforts to take advantage of the opportunities of the growing and increasingly diversified U.S. fruit and vegetable market. Their main strategies include development of new products and/or new varieties, improvement in technologies, and distribution systems, as well as marketing and promotional strategies.

Products recently introduced, or soon projected to come to the U.S. market, include golden raspberries (during January-April), blueberries and blackberries (picked through mid-April), organic raspberries, and red cherries for the Christmas holidays from Chile. Others include: white eggplant and purple and white eggplant (graffiti eggplant) shipped by sea, as well as green, yellow, purple, and orange baby sweet peppers shipped by air from Holland; Golden kiwi from New Zealand, and Sunblush Pineapple Supreme from Costa Rica; also Sharon fruit persimmons (during November-March) and Sweet Pomelo from Israel; lemons from Argentina (during June-September); Tiger limes from Nicaragua; sweet corn and various root crops from Honduras; and new varieties of melons from Central America.

Future possibilities: technologies and distribution systems improvements currently being developed include an X-ray unit that the Mexican government has set up, about 100 miles from the U.S.-Mexico border, in order to facilitate custom officers checking for contraband without having to open the truck, thereby avoiding delays and the corresponding damage to the quality of products inside the truck. Additionally, officials are using technologies to improve the packaging and cooling systems for papaya, to increase its quality and shelf life and to avoid the need to repackage it in the United States. Peru, which is expected to export 12,000 tons of sweet onions in 2000 (up from 800 tons 5 years ago), is certifying the sweetness of their onions and guaranteeing food safety through soil analysis testing via satellite. Brazil is developing a 1 million hectares irrigation project in the northeast, for the production of several types of tropical and sub-tropical fruits for exports, including mangos, melons, limes, papayas, and grapes; at the same time Brazil is working closely with APHIS representatives on the eradication of the fruit fly. The government of China is promoting foreign investment and technology transfer for the production of high-value products, such as fruits and vegetables. And both Chile and Brazil have committed significant budgets to the promotion of their products in the U.S. market.

FreshTrack

2001

Supply Chain Management in the Produce Industry

FOOD INDUSTRY MANAGEMENT

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FreshTrack 2001

Supply chain management in the fresh produce industry is rapidly evolving as a result of new technology and a system-wide focus on improved efficiency, quality, and safety. Because the effective development of a well-managed supply chain throughout the fresh produce system is critical for growth and profits, this study sets out to document changes and challenges critical at all levels of the industry with information vital for business success. The goal of this study is to generate key benchmark information for decision makers in the fresh produce industry.

Throughout this survey we will often be asking you for information for three points in time: **1996, today (2001), and your projections for the year 2006.** There are no right or wrong answers. If you are not sure of your response to a question, please provide your best estimate.

All responses to this survey are strictly confidential. Surveys are coded for mailing purposes only. No individual companies will be identified; all responses and results will be reported in aggregate form only.

About Your Produce Department

1. Please give your job title. _____

2. Please place a check beside the category that best describes your company's annual sales.
   ___ Less than $300 million ___ $300 million-$1.5 billion ___ over $1.5 billion

3. What is the total number of produce category managers and produce buyers in your company?

	Buyers	Category Managers
At Headquarters	_____	_____
At Division/Regional Office	_____	_____
In the Field (Field Buyers)	_____	

4. Please complete the table below for your produce department (excluding floral):

	1996	2001	2006
Warehouse: total produce SKUs			
Store Produce Department: % of store sales			
% of store profits			
Total department SKUs			
Non-fresh SKUs			

5. For Retailers: What is the average size of the produce department in your company's current and future stores?

	1996	2001	2006
Square feet	_____	_____	_____
Linear feet (if available)	_____	_____	_____

Procurement

1. Approximately what percent of your produce was purchased under some form of contract pricing? *(Note: By contracting, we mean any agreement where multiple orders are placed over time, e.g. an entire season or year, at a predetermined price and/or quantity.)*

	% of purchases under contract			
	0%	1-10%	11-25%	25% +
1996	_____	_____	_____	_____
2001	_____	_____	_____	_____
2006	_____	_____	_____	_____

2. Approximately what percentage of all your communications with suppliers is by each of the following means?:

	1996	2001	2006
Phone	_____	_____	_____
Receiving/sending EDI	_____	_____	_____
Internet	_____	_____	_____
E-mail	_____	_____	_____
Receiving/sending faxes	_____	_____	_____
Other (describe)_____	_____	_____	_____
_____	**100%**	**100%**	**100%**

3. How are you using the Internet to facilitate produce buying? *(Please check ALL that apply.)*

☐ To serve as platform for EDI
☐ For e-mail
☐ Business-to-business transactions
☐ For a Web page
☐ Other, please describe
_____

4. On average, what is the order cycle time (lead time) for produce in your company?

Note: Order cycle time is defined as the number of business days, on average, from when an order is placed until an order is received at the distribution center.

	1996	2001	2006
Everyday items	_____	_____	_____
Promotional items	_____	_____	_____

Suppliers

1. What percentage of your company's produce is currently purchased from each of the following sources?

	1996	2001	2006
Direct from Grower/Shipper	_____	_____	_____
Via Broker	_____	_____	_____
Produce Wholesaler	_____	_____	_____
General-line Grocery Wholesaler	_____	_____	_____
Other (describe) _____	_____	_____	_____
Total	**100%**	**100%**	**100%**

2. Please complete the following table.

	1996	2001	2006
Number of produce suppliers			
Percent of produce purchases from your top 10 produce suppliers	%	%	%
Percent of produce purchases considered short-run or "spot buys"	%	%	%

3. Does your company have a set of formal performance guidelines for produce vendors? (Please check ONE response.)

☐ No, not currently

☐ No, but anticipate having them in the next 3-5 years

☐ Yes (attach a copy if available)

4a. Are some suppliers exempt from these guidelines?

_____ No
_____ Yes, please explain _____

4b. With what percent of your suppliers are these guidelines routinely enforced?
_____% of suppliers

Transportation

1. For what percentage of your produce purchases do you have responsibility for arranging transportation?

	1996	2001	2006
% of purchases	_____	_____	_____

2. On average, what percentage of your total produce procurement costs are for transportation?

	1996	2001	2006
% of procurement costs	_____	_____	_____

3. What percentage of your produce purchases are received at your distribution center as the following:

	1996	2001	2006
% mixed loads from suppliers	_____	_____	_____
% full loads from suppliers	_____	_____	_____
	100%	**100%**	**100%**

4. What percentage of your produce purchases are delivered directly to the store by suppliers?

	1996	2001	2006
% direct store delivered	_____	_____	_____

5. What percentage of arrivals to your distribution center are delivered "on-time"?

	1996	2001	2006
% delivered on time	_____	_____	_____

6. Approximately what percentage of your produce arrivals are rejected?

	1996	2001	2006
% rejection	_____	_____	_____

Technology

1. Please estimate the **percentage of your produce purchases** that rely on the following initiatives:

	1996	2001	2006
Electronic Data Interchange (EDI)	_____	_____	_____
Cross-Docking	_____	_____	_____
Case Coding	_____	_____	_____
Continuous Replenishment (CRP)	_____	_____	_____
Vendor Managed Inventory (VMI)	_____	_____	_____
Automated Purchase Order System	_____	_____	_____
B2B E-Commerce	_____	_____	_____

Pallet Bar Coding	_____	_____	_____
Returnable Containers	_____	_____	_____

2a. Please estimate the **percentage of your produce purchases** that rely on the following EDI transmissions in your company:

	1996	2001	2006
Purchase orders	_____	_____	_____
P.O. acknowledgments	_____	_____	_____
Forecasts	_____	_____	_____
Advanced ship notification	_____	_____	_____
Invoices and/or payments	_____	_____	_____
Carrier shipment status	_____	_____	_____

2b. Are there any other standard EDI practices used in your produce department? Please describe.

_____

_____

3. The following are issues often associated with trading produce using B2B E-commerce. How important is each of these issues to your company? (Please circle ONE response per issue.)

	Very Unimportant		Neutral		Very Important
Advantages:					
Increased transaction accuracy	1	2	3	4	5
Lower transaction costs	1	2	3	4	5
Expands the number of sellers	1	2	3	4	5
Greater transaction speed	1	2	3	4	5
Greater buying leverage	1	2	3	4	5
Levels the playing field between large and small suppliers	1	2	3	4	5
Disadvantages:					
Lack of personal touch	1	2	3	4	5
Possibility of technology or systems failure	1	2	3	4	5
Lack of universal B2B format	1	2	3	4	5
Limited ability to differentiate product	1	2	3	4	5
Inability to obtain "immediate" satisfaction for product problems	1	2	3	4	5
Limited ability to negotiate	1	2	3	4	5

System-Wide Issues

1. Please indicate the total produce shrinkage (explained and unexplained) or loss factor in your warehouse and retail store.

Warehouse_____ Retail Store_____ Total_____
% of sales **% of sales** **% of sales**

2. Within your produce organization, what priority does your company place on each of the following industry issues and initiatives? For each year indicated, place the priority number (1-5) from the scale below in the space provided.

Low Priority **Neutral** **High Priority**
1 2 3 4 5

	1996	**2001**	**2006**
example: E-Commerce	***1***	***4***	***5***
Food safety	____	____	____
HACCP standards	____	____	____
Product traceability	____	____	____
Quality specifications	____	____	____
Cold chain maintenance	____	____	____
Pallet bar coding	____	____	____
Returnable containers	____	____	____
Demand forecasting	____	____	____
Flow through/cross dock in perishables	____	____	____
Vendor partnerships	____	____	____
E-Commerce	____	____	____
Category management	____	____	____
Inventory turns	____	____	____
Vendor Managed Inventory	____	____	____
Decreased order time	____	____	____
Maintenance of margins	____	____	____

3. Who in the produce distribution system do you believe has the major responsibility for each service below? (Please write the number of the corresponding sector in the blanks provided below.)

Responsibility lies with: Retailers = 1 Shared = 2 Suppliers = 3

	1996	2001	2006
example: Demand forecasting	**2**	**2**	**3**
Demand forecasting	____	____	____
Private label	____	____	____
Package innovation	____	____	____
Market research	____	____	____
Promotion support/planning	____	____	____
Category management	____	____	____
Productivity analysis	____	____	____
Cross-docking	____	____	____
Shipment consolidation	____	____	____
Inventory management	____	____	____

4. Retailer consolidation has had many system-wide impacts. Has retail consolidation changed the way you manage your supply chain?

____ NO ____ YES

If yes, please give 2 examples of how your business has changed as a result of consolidation?

1. _____

2. _____

Thank you for completing this survey.
Please return it in the preaddressed envelope.

Three Reasons to Participate!

(1) FREE copy of survey final report.

(2) Chance to win one of three FREE registrations to the PMA Annual Convention in Philadelphia.

(3) Chance to win a two-week full tuition scholarship to Cornell University's Food Executive Program in July ($7,000 value).

In order to be eligible for the above, please provide the following information.

(This page will be separated from the questionnaire to ensure the confidentiality of your responses.)

Name _____

Company _____

Street Address _____

City _____ State _____ Zip code _____

E-mail _____ Phone _____

If you have any questions regarding this study or this questionnaire, please contact:

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(As of August 20, 2001)

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99-11	Dairy Farm Management, Business Summary, New York State, 1998	($12 ea.)	Knoblauch, W.A., L.D. Putnam and J. Karszes
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